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EXTENSION OF SALINE WATER PROGRAM

HEARING
BEFORE THE
SUBCOMMITTEE ON
IRRIGATION AND RECLAMATION
OF THE
COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
UNITED STATES SENATE
EIGHTY-FOURTH CONGRESS
FIRST SESSION
ON
S. 516
A BILL TO AMEND THE ACT OF JULY 3, 1952, RELATING TO
RESEARCH IN THE DEVELOPMENT AND UTILIZATION
OF SALINE WATERS

APRIL 19, 1955

Printed for the use of the Committee on Interior and Insular Affairs



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EXTENSION OF SALINE WATER PROGRAM

TUESDAY, APRIL 19, 1955

UNITED STATES SENATE,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION OF THE
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D. C.

The subcommittee met, pursuant to call, at 10 a. m., in room 224, Senate Office Building, Senator Clinton P. Anderson (chairman of the subcommittee) presiding.

Present: Senator Clinton P. Anderson, New Mexico (chairman of the subcommittee).

Present also: Stewart French, general counsel; N. D. McSherry, assistant chief clerk; Goodrich W. Lineweaver, staff member for reclamation; and Elmer K. Nelson, consulting engineer.

Senator ANDERSON. The hearing will be in order on Senate 516. May we have in the record in the first place a copy of the bill, Senate 516, and then a copy of the report of the Department of the Interior dated February 16, addressed to Senator Murray, with reference to this bill, and a copy of letter of March 2 of Donald R. Belcher, Assistant Director of the Bureau of the Budget.

(The bill S. 516, the report, and the letter referred to follow:)

[S. 516, 84th Cong., 1st sess.]

A BILL To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C., secs. 1951 ff.), is hereby amended as follows:

(1) By modifying subsection (a) of section 2 of said Act so as to read: "by means of research grants and contracts as set forth in subsection (d) of this section and by use of the facilities of existing Federal scientific laboratories within the monetary limits set forth in section 8 of this Act, to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation".

(2) By modifying section 8 of said Act so as to read: "There are authorized to be appropriated such sums, but not more than \$6,000,000 in all, as may be required (a) to carry out the provisions of this Act during the fiscal years 1953 to 1963, inclusive, (b) to finance for not more than two years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this Act, and (c) during the same additional period plus one more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this Act. Departmental expenses for direction of the program authorized by this Act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed \$1,500,000, and not more than \$500,000 shall be expended for research and development in Federal laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable."

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., February 16, 1955.

HON. JAMES E. MURRAY,
*Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.*

MY DEAR SENATOR MURRAY: You have requested a report on S. 516, a bill to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters.

The act of July 3, 1952 (66 Stat. 328, 42 U. S. C., 1952 edition, secs. 1951ff) authorized the appropriation of a total of \$2 million to enable this Department to carry on, through contracts with private scientists and engineers, educational institutions, scientific organizations, and engineering firms, a 5-year research program looking to "the development of practicable low-cost means of producing from sea water, or from other saline waters, water of a quality suitable for agricultural, industrial, municipal, and other beneficial consumptive uses * * *."

Enactment of S. 516 would modify the basic act by extending the period under which operations can be conducted under it, by increasing the amount authorized to be appropriated for the conduct of these operations, and by permitting research to be carried on to a limited extent in existing Government laboratories.

It is the recommendation of this Department that S. 516 be enacted.

Continued expansion of our industries, our growing populations, and expanding agricultural production have increased tremendously the demand for large quantities of fresh water. This continued growth and expansion has placed a severe drain on our water resources in certain areas. In many instances, new reservoirs have had to be constructed and water transported over great distances, in other cases the water supply has been supplemented by new wells which have lowered the water table. The pumping of ground water for irrigation in many areas has been at rates considerably above the safe yields as estimated by the United States Geological Survey. The sources of water on which we normally rely are gradually being exhausted and, through use and reuse, the supplies derived from these sources are being contaminated. The need for finding additional fresh water sources therefore is obvious.

Results during the past year have demonstrated the need for, and usefulness of, a Government program of this nature. Most industrial firms do not feel justified in carrying on the development of saline water-conversion equipment beyond certain improvements in present equipment. To accomplish the demineralization of large quantities of saline water at a fraction of the present cost will, however, require much more development of new principles and processes than improvements in present processes. The Government program assures that research and development investigations will continue both on the development of new and untried methods and on improvements in present methods.

At the beginning of the program, the cost of converting sea water to fresh water by the best processes in use was estimated at about \$400 to \$500 an acre-foot. Accordingly two cost goals were set for the initial 5-year phase of the program, one for water for municipal and similar purposes and one for irrigation water. (For these criteria, no distinction is made as to whether the water to be converted is sea or brackish water.) These goals were \$125 and \$40 per acre-foot (38 and 12 cents per 1,000 gallons), respectively, and they were believed, on the basis of data then available, to represent about the maximum that could be borne by these types of use. Although considerable work remains to be done before those initial goals are fully realized, they are being approached and it is believed they can be reached and lowered if the research is continued. In other words, the results to date indicate that the conversion of sea water to fresh water at a price which municipal users and some industries might pay and the conversion of saline water to irrigation uses may be in sight.

Recent results have indicated that no single process will provide fresh water for all purposes at all locations and under all circumstances. Thus it is desirable that several different principles, processes, and combinations of processes be investigated and developed concurrently. In addition, it is becoming increasingly apparent that nonconventional low-cost energy (e. g., solar, wind, geothermal energy, etc.) must be investigated in connection with process development and use.

Preliminary results obtained from one vapor-compression investigation and extrapolated to large-scale operation indicate a good possibility of producing fresh water from sea water for approximately one-fourth the cost of distilling water by any process in use at present.

Preliminary estimates for a critical pressure device of large capacity likewise indicate that fresh water may be obtained from sea water at costs much below those of existing processes if 2 or 3 critical problems now under research study can be solved.

Other processes under development include an ion transfer membrane demineralizer which is undergoing field tests at the present time; various aspects of the vapor compression distillation process, some of which will reach field-testing stage next year; solar distillation, solvent extraction, freezing, osmotic processes, and ultrasonics.

Initially, most of the research and development on processes has been on a relatively small-scale laboratory basis and only nominal expenditures have been required. Much of this exploratory and more or less fundamental research needs to be continued. However, as individual processes which show sufficient promise are developed in the laboratory, pilot plants or field tests become necessary. Such tests are essential in order to obtain reliable cost estimates and information on the durability of the unit, down time, production capacity, power requirements, corrosion, etc. Developmental work, including field tests of this type, is more costly than laboratory investigations.

Under the provisions of the Saline Water Act of 1952, all work undertaken pursuant to that act must be completed prior to July 15, 1957, the anniversary of the date of the first appropriation to implement it. Not only all research activities and field tests under contract but also all reports thereon and the correlation and coordination of all data must be completed by that date.

Since most research and development contracts are for a period of about a year, it would thus be necessary to terminate most active research contracting by about December 1955 to permit completion of the work under the contract and final reporting of the results and conclusions of the program by July 1957. Only a small portion of the appropriations for fiscal year 1957 could be utilized for contract research just at the time when the need for advanced research and development of promising processes is expected to be paramount.

To permit continuity and the attainment of the program's goals, an extension of time is desirable. The results obtained to date are, as has already been noted, sufficiently encouraging to indicate that, if the activity is given sufficient time, economical processes for the treatment of brackish water and sea water will be developed. Research of this type is perforce long-range in character. Unless assurance can be given to the private firms and research organizations who are serving or will serve the program as contractors that promising studies will be carried to completion, we will have difficulty achieving worthwhile results even in fiscal years 1956 and 1957. Assurance that the program will not be interrupted is needed now if we are to undertake research that will not be completed until after fiscal year 1957. Interruption or abandonment of the program after fiscal year 1957 would, in any event, dissipate a large part of the valuable results already achieved or anticipated, with a consequent loss to the Government.

Since the initiation of the research program under the act of July 3, 1952, excellent cooperation has been received from various organizations. Efforts are continually being made to encourage private development of processes and to interest industrial firms in the problem. The expansion of our basic authorization proposed in S. 516 to permit an expenditure up to \$500,000 for research to be conducted in existing Government laboratories would, however, prove advantageous in a number of ways. Several individual scientists have had ideas on processes worthy of at least exploratory research effort but do not have laboratory facilities available. Some would be agreeable to having the research carried out at a Government laboratory but the research has not been carried out because of apparent lack of authority to utilize such laboratories. Government scientists, in some cases, have worthwhile research to propose in which they and their laboratory are best qualified to proceed. Another area in which operations in a Government laboratory would be valuable is in making unbiased comparisons of processes and in confirmation of research results. In some cases, Federal scientific organizations offer the only satisfactory personnel and facilities to conduct certain investigations.

The Bureau of the Budget has advised that there would be no objection to the submission of this report to your committee but that no commitment can be made at this time with respect to the amount of \$6 million which the bill, if enacted, would authorize to be appropriated.

Sincerely yours,

FRED G. AANDAIL,
Assistant Secretary of the Interior.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., March 2, 1955.

HON. JAMES E. MURRAY,
*Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington 25, D. C.*

MY DEAR MR. CHAIRMAN: This will acknowledge Mr. Stewart French's letter of January 20, 1955, requesting the views of the Bureau of the Budget on S. 516, a bill to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters.

The proposed legislation would amend the existing act by extending the life of the program from 5 years to 10 years for active research with 3 additional years to complete existing research projects and to correlate data and publish results. In addition, this bill would increase the maximum authorization for the program from \$2 million to \$6 million. Within this authorization the maximum amount for departmental expenditures would be raised from \$500,000 to \$1,500,000. The amendment further permits the expenditure of not more than \$500,000 for work in Federal laboratories.

The Department of the Interior and the National Science Foundation have reported to this Bureau that they consider this to be an important area of research and therefore recommend enactment of this legislation.

The Bureau of the Budget concurs in the views expressed above and recommends that your committee give favorable consideration to this bill.

Sincerely yours,

DONALD R. BELCHER, *Assistant Director.*

STATEMENT OF HON. FRANCIS CASE, UNITED STATES SENATOR FROM THE STATE OF SOUTH DAKOTA

Senator CASE. Mr. Chairman, with your indulgence, I would like to talk informally.

Senator ANDERSON. I think it would be fine if you would do that.

Senator CASE. Thank you, Mr. Chairman.

S. 516, as I am sure the committee knows, is a bill to carry forward the program authorized by the act of July 3, 1952, authorizing research in the development and utilization of saline waters. The chairman of this committee has a great deal of background on this whole subject of water. He was one of the Senators who was interested in the adoption of the act of July 3, 1952. He was most helpful on the floor in its passage and in getting funds to implement the act.

Research into the development and utilization of saline waters has been going forward under provisions of the act, very well. But we did not start too soon. Last year I was at the White House on two different occasions when I heard the President of the United States say that he regarded the increase of our water resources as the most important problem we have. He described water as the most critical natural resource that we have.

Yesterday, the Chief of Engineers, Gen. Samuel D. Sturgess, appeared before the Committee on Public Works, and made the statement that our use of water in this country has increased by 4 times in the last 50 years. Someone asked, "What does that mean on a per capita basis?" The population has gone up, and naturally it would increase." The answer is that the population has gone up about twice, and we are using twice as much water per capita as we did. So, water demand, whatever the cause, is twice what it was at the opening of the century.

Senator ANDERSON. Did he anticipate a continuing growth in the utilization of water?

Senator CASE. He did. Regardless of whether we have a per capita increase or not, if total demand increases 4 times in 50 years, and we are dealing with an exhaustible resource in certain areas and a dwindling resource in other areas, the importance of research in devices to recover used water or to increase the supply of water by conversion of brackish water becomes self-evident.

Senator ANDERSON. Before whom was this testimony?

Senator CASE. The Committee on Public Works. It was a statement on the total program of the Corps of Engineers, opening a series of hearings on flood control, river and harbor projects.

Senator ANDERSON. Senator Case, has it not been your experience, living a long time in the West, that a great many industries in the West can look forward to development only if water supplies keep pace with technological developments?

Senator CASE. That is certainly true. It is not merely only in the West, but in the Middle West and the East. The growing demand of water for industrial uses means that in many places that thought they would never worry about water they are worrying greatly.

Senator ANDERSON. If it is true in the West, is it not equally true on both coasts?

Senator CASE. I think it is. At this point, I want to bring to the attention of the committee an engineering publication entitled "Power" of the McGraw-Hill Publishing Co., and the special report on water to which the number of September 1952 was devoted. This number is stimulating to anyone who is interested in water. The authors of this report speak of water as a resource which circles endlessly between the sky, the land, and the ocean and back to the sky through transpiration and evaporation.

I asked yesterday that copies of it be gotten and supplied to all members of the Committee on Public Works. I think members of this Committee on Interior would also find the report of considerable interest.

I am not going to burden the record with reviewing it at this time, but I suggest that it is very significant when this well-known firm in the engineering world devotes an entire publication to the need for conserving and increasing the recovery of water and describes the ways in which those goals can be approached.

Among the important means that it suggests, incidentally, is the recovery of water from the ocean.

Senator ANDERSON. Were you able to get copies of this for the members of the Public Works Committee?

Senator CASE. I do not know whether we will get extra copies or not. I brought my file copy along for illustrative purposes this morning.

You will note this schematic design suggesting that the supply of water which existed at the beginning of the world has moved endlessly between sky and land, works through the soil and then by runoff or evaporation or eropping gets back to the sky.

The rain portion of the cycle suggests development along another line in which the chairman and I have been interested; that is the possible modification of clouds. That, we agree, has important potentialities. For our immediate concern, however, I call attention to the space given in this report to the possible recovery of saline waters.

In my own thinking the possibilities in this field include not merely ocean waters, but also naturally brackish waters in the United States, and the waters which have been contaminated by mineral salts deposited through industrial uses.

And this broad field is the one in which research was authorized by the act of July 3, 1952, which we seek to extend with the bill S. 516. Congressman Engle, of California, has a companion bill in the House.

Following the adjournment of Congress last summer, a number of the Members of the House who have been interested in this program and I went to Boston with Mr. David Jenkins of the Department of the Interior, who has been in charge of this research program. There we saw two of the experimental projects getting underway.

First we saw the field unit that is to try out the ionic process on waters in Arizona and in South Dakota. That was most interesting. My interest in this field was first attracted to the possibility that we might run water through synthetic resinous membranes and by the application of electricity during the filtration break out the salts and get a recovery of good water that would not be beyond the cost that municipalities could pay for domestic use.

Such information as I have would indicate that that research is succeeding in that direction. These membranes are built up in a stack or column with offsetting holes in them. As the water goes between the membranes, and then passes on through, ionic separation takes place. As I recall, they get a recovery of about two-thirds fresh water and one-third sludge, or it may be the other way around. At any rate, it is a very interesting process and not too expensive for moderately hard water. I hope when the results come from the field, where the unit is now at work, that we may have a solution for the many small towns and larger municipalities who have long been plagued and handicapped with brackish waters, unfit for boilers and unpalatable for human consumption.

Somewhat to my surprise, I was even more intrigued by a new experiment I saw underway in Boston at the Badget Co. that seems to me to have even greater potentialities in desalting water from the ocean. Dr. Hickman has created a device which utilizes several physical laws in the distillation of water at low temperature by whirling thin layers of water in a vacuum. This inventor-scientist had taken the motor out of an old vacuum cleaner and used it to spin a couple of disks inside a sealed vacuum. The inside of the housing showed disks like a couple of frying pans spinning by the revolving shaft in the center. He induced the water into the vacuum and sprayed it on outside of the whirling frying pans in a thin film. This gave the advantage of quick explosion of the water, the same as when you simply wet your finger and put it on a hot iron. The water boils almost instantly and goes off as steam. By doing this under a vacuum the heat required is very little and largely comes from the centrifugal force. The result, of course, is a steam drawn into a condenser and you have distilled water.

My recollection, and here again I leave it to those who might have taken notes on it, that this offers a prospect of getting distilled salt-free water out of the ocean water at a cost of about \$100 per acre-foot, or approximately 30 cents a thousand gallons.

If that goal can be achieved, the significance of that is almost beyond imagination for coastal cities. Any city can certainly pay 30 cents a thousand gallons for municipal water.

Senator ANDERSON. Senator Case, you have been very much interested in this for a long time. Do you not see the possibilities that if this process might work, or some equivalent process might work, that we could cure a great many of the squabbles that are going on in this country now with reference to possession of water?

Senator CASE. I think we may well do that very thing and save billions of dollars.

Senator ANDERSON. I am thinking of a bill that is now on the Senate floor on the upper Colorado project. The opposition to it is pretty largely based on the fear of the city of Los Angeles that it may lose a water supply very essential to its future growth. Whereas, if it was able to take the sea water that lies within its boundaries it would have an unlimited supply of water and could turn back to the Colorado River the water which it is now using, thereby changing the position of all of these States involved in this controversy, including the States of Nevada and Arizona, particularly, in the lower basin, and all of the upper basin States, because of the 5 million acre-feet now being used in California being able to be obtained from the sea. Then the waters of the Colorado River are more than ample for all the development that was originally contemplated.

Senator CASE. That is certainly true. I do not wonder that California is concerned, because I believe that two-thirds of their population lives in the part of the State that receives about a third of their rainfall. But the various projects that are proposed to bring water to that area run into billions of dollars. Our bill here suggests a research program of possibly \$6 million. If it were successful in achieving a process which will answer the water problems of South California alone, the Federal Government would receive dividends that would run 1,000 percent.

Senator ANDERSON. The Federal Government could afford to pay a billion dollars to have this water available in one spot alone in this country, to say nothing about all the other spots in the country that would be in a wholly different situation if they were able to do this. Of course, there would be an enormous saving, would there not, in the construction of every vessel that traverses the seas. There would be enormous savings in a ship like the *Nautilus* which has to make potable water out of sea water. If a simple process could be developed, it would reduce the cost very materially in the future.

Senator CASE. It would reduce the cost and increase the payload. If a ship has to carry water with it, it loses the payload that it can carry.

Senator ANDERSON. So what the Senator from South Dakota is seeking in this bill is not any narrow advantage to any particular section of the country, or any narrow advantage to any particular industry, but it is of importance to every section in the country and every industry in the country.

Senator CASE. That is correct. I appreciate the able chairman's statement in that regard.

There is just one additional point I would like to make. This is a research program. There was a tendency in the Appropriations Committee at one time to think that the proponents should be able in advance to say this is the particular project we want to work on, or that is the particular project. But this program includes broader or more basic research than that. The responsibilities that rest upon the people who carry out this program, it seems to me, are

such that it should give them free rein to consider new proposals and to follow where their research may lead them. I have mentioned only 2, but I understand that some 500 research proposals of one sort or another have been received.

When we were discussing this program before the first legislation was enacted, I referred to a news item I had seen that some Swedish inventor had a different process. That is one of those now being studied. I believe more than a score of research and development contracts have been made, and all of them are on a different approach. Some of them would use solar energy. Some of them may use the reverse osmosis process. Some of them would use the extraction process.

If the job is to be done, the committee should have sufficient funds to pursue research or grant research contracts along any line which seems to offer promise after it has been evaluated. I said I understood over 500 proposals had been made. It does not mean that they have to pursue every one of those to the ultimate goal, because some of them can be classified and judged in relation to something they have learned in the programs already established. But the agency ought to have sufficient funds so that they can pursue everything that offers any promise in this very important field.

Senator ANDERSON. Would the Senator from South Dakota permit me to suggest that that is exactly what is being done in other programs now under way. The Atomic Energy Commission announced a few days ago that it had received four proposals for building reactors on the basis of its new program. It took bids up to April 1, and it got four offers. Each one of those four offers is for a different type of reactor. One is for a boiling water reactor, one is for a pressurized water reactor, one is for a swimming pool type, and one is for sodium graphite. They did not say they are going to spend hundreds of millions of dollars on these things, not the Commission, but private industries; they didn't say try the boiling water reactor and nothing else; and they didn't say try the sodium graphite reactor and nothing else. They said each one of you try something a little different. We like that.

Then along came private industry, and they said we don't want the Government help because we want to try something that is so revolutionary that perhaps the Government would not want to put any money in it.

Is that not somewhat parallel to what you have been suggesting here, that they not try one process, even though this Swedish process 2 or 3 years ago seemed to be the most promising, but try various processes?

Senator CASE. I am glad for the illustration the chairman has proposed. I would like to ask him, too, because of his chairmanship also of the Joint Committee on Atomic Energy, whether or not some of those programs or proposed processes for the application of atomic energy do not of themselves involve potentially large uses of water.

Senator ANDERSON. Enormous quantities of water.

Senator CASE. And for that reason this water program might make a contribution also to the development of atomic energy on a practical basis.

Senator ANDERSON. Yes, I think there is no question of that. Particularly I think because there are areas that are high cost areas

for electric energy which would seem to offer the greatest possibility for returns from atomic energy plants. Almost always, however, those high cost areas seem to be located at spots where water is not too prevalent. Therefore, you come back to the same question which you pose; we ought to be able to use the water resources we have in those areas.

Senator CASE. Mr. Chairman, just in conclusion, may I offer this thought. There are some programs that we have that seem to offer benefits for a particular class of people or for a section or area, as you have suggested. This program, however, has potential benefits all across the country. It offers hope to the rancher living in an area where the only well water he can get is alkali and brackish and poor water for his stock to drink, poor water for his wife to use in her laundry and household uses. It offers advantages for the small towns that have iron in their water, or magnesium or sulfur; it offers a way for them to get water that will do away with water softeners and make better living possible for people living in those towns. It offers potentialities for the small city that wants to develop industrially, but does not have an adequate water supply, and has to reclaim water when it is used industrially. It offers potentialities for the larger cities along the seacoast that have the tremendous problem of an adequate supply for a growing industrialization. You, Mr. Chairman, have now suggested that it offers possibilities for contribution to this great field of atomic energy. So, Mr. Chairman, this is one bill that has no politics in it, no geography in it, no discrimination in it, or anything of that sort. It is a bill of multiple benefits to all our people, and I hope it may be approved.

Senator ANDERSON. I want to add one use that probably my preoccupation with atomic energy might suggest to me, and not anyone else, but I have been hearing what the civilian defense problem might be in case of the dropping of an atomic bomb on this country by a hostile nation. We fortunately have escaped the scars of war in this country but we have to realize that if intercontinental missiles might be developed, or a plane might carry an atomic bomb and drop it, it need not hit a city like New York to cause unlimited damage. If it hit the reservoir above New York which supplies its water, it would immediately put a great city like New York in a frightful position. You could not rebuild that reservoir in a few days.

Senator CASE. Nor replenish the water supply.

Senator ANDERSON. That is correct. But if you had a machine that could turn right to the ocean and pump water into the mains, that will be very effective. I need not say to the Senator from South Dakota, who has been watching the developments on this front, that if an atomic blast should come to this country, the one thing that helps perhaps is to be able to wash frequently and well and make sure that these products that are left around on the ground do not cause damage. The one lesson we learned from the Japanese fishermen was that if they had been able to wash quickly and had done so, the damage would have been minimized. Other people in that area got almost the same exposure as far as hours of exposure were concerned, but they were treated at once by Public Health Service people who became aware of their exposure to fallout, they washed quickly, and did not need anything more than ordinary water to get rid of a great deal of the effects.

I think we better make sure we have a water supply in this country if we are going to live in an atomic age.

Senator CASE. I appreciate the chairman's emphasis on that. I was in Nevada recently for one of the tests, and the thing that was stressed in our briefing there was that the best method of decontamination was to wash things down.

Senator ANDERSON. That is exactly right. That is why I say water is so important in this program.

Does the Senator feel that a \$6 million appropriation is adequate?

Does he think it ought to be increased or diminished, or would he like to have the bill stand as it is?

Senator CASE. Mr. Chairman, on the basis of the start we made on the program, I thought that \$6 million was a sound figure to suggest. We started out, as you know, with an authorization for \$2 million, spread over a possible 5-year period. We had to start with a very small amount to get the money in the supplemental bill. I think the people who have been working on the program are better able to judge of exact needs than I. I am not familiar with the costs on research projects to give a sound judgment.

Senator ANDERSON. The Senator from South Dakota knows that the only reason we put in only \$2 million the other time was because that was all we thought we could get by with. It was not that anyone thought that was going to do the job.

Senator CASE. We had to be modest in order to get a hearing.

Senator ANDERSON. It may be true again that we will have to be modest in order to get a bill of this nature through.

Senator CASE. Mr. Chairman, the figure of \$6 million will hardly do all the job that ought to be done. If we can increase the total and tackle the larger problem, a limitation perhaps, ought to appear in the amount that is used in this correlation between research and development in Federal laboratories, and that which is undertaken by contract.

Senator ANDERSON. I notice in line 17 that it puts not more than \$500,000 to be expended for research and development in Federal laboratories—\$500,000 does not mean anything in a research project any more. It is a rather small sum of money if you start to step it up into a sizable program. I do suggest that not only the development of the hydrogen bomb, so-called, but also the development of the whole arsenal of weapons that are completely different from any we have used, and the indication at least that other nations are going to have similar weapons, would certainly make it desirable to speed this up as much as possible.

Senator CASE. Does the chairman know to what extent the Appropriations Committee is currently going into the amount that can well be used in any given year?

Senator ANDERSON. I have no knowledge on that subject. I am only suggesting to the Senator from South Dakota that it might be well—and before we finally come out to report the bill—if he would look again as to the limitations that were put in as to overall amounts, and the amounts that might be used in a single year. It might be well to put a specific provision in there for cooperation between the Office of Civil Defense and the Atomic Energy Commission, because I think that water is one of the few things that can be useful in case of atomic attack on this country.

Senator CASE. Of course, what the chairman is pointing out there is important, namely, the coastal cities are for several reasons likely to be more subject to attack than some interior cities, because of the possible approach by submarines launching atomic devices, the possible egress and ingress of materials, supplies, troops, ships, and so forth, through the harbors; so that the need for a fresh water supply may become increasingly important at coastal cities. The cities who might most readily replace a supply if they could convert saline waters would be those coastal cities.

Senator ANDERSON. I am only trying to say that when the first discussion came up on this proposal, and when the Senator from South Dakota put together a bill that Congress passed, it had no knowledge of how quickly we might be in a hydrogen age, and it had no knowledge that our relationships in other parts of the world might deteriorate as rapidly as they have. I think that the development of these new weapons does somewhat change the urgency of this bill.

Senator CASE. I think it does. The Bureau of the Budget made a favorable report on the bill as it is before the Senate, did it not?

Senator ANDERSON. Yes. It might be desirable to leave it as it is. But I think if we change some language in it to permit more rapid expenditures of money, if there is a feasible way of spending it, then it might not be a bad idea.

Senator CASE. I assume, of course, the committee will take some testimony from the people handling the project on that score.

Senator ANDERSON. Yes. Thank you very much.

Senator CASE. Mr. Chairman, I thank you.

Senator ANDERSON. Mr. Frye.

STATEMENT OF ED FRYE, FOR FRED G. AANDAHL, ASSISTANT SECRETARY OF THE INTERIOR

Mr. FRYE. Mr. Chairman, I have a statement prepared for Assistant Secretary of Interior Aandahl. He could not be here, and asked that I be permitted to read it.

Senator ANDERSON. Very well. You may proceed.

Mr. FRYE. The departmental report recommending passage of the proposed legislation which was submitted by my letter of February 16 gives considerable detailed information on various aspects of the saline water conversion program. At this time I would like to discuss briefly the departmental policy regarding this work, and then, with your permission, ask Mr. Jenkins, director of the program, to report on the actual operation of the program, including its technical phases.

I would like here to say that good progress is being made in the development of practical, low-cost means of desalting sea and other saline waters. The advisers to the Secretary of saline water conversion have from time to time reviewed the program and the progress being made and statements submitted by eight of them favor the proposed legislation. With your permission I have copies of those letters which I submit for the record.

Senator ANDERSON. Those may be inserted in the record at this point.

(The information referred to follows:)

MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
OFFICE OF THE PRESIDENT,
February 16, 1955.

MR. FRED G. AANDAH, *Assistant Secretary of the Interior,*
United States Department of the Interior,
Office of the Secretary, Washington 25, D. C.

DEAR MR. AANDAH: I am glad to express my concurrence with the proposal that Congress be requested to extend the Saline Water Act for a period of 5 years. It is important that there be a sustained program of research and development if we are to come up with new developments, and the extension of the act will help to accomplish this.

Yours sincerely,

J. R. KILLIAN, Jr., *President.*

THE UNIVERSITY OF WYOMING,
OFFICE OF THE PRESIDENT,
Laramie, Wyo., January 7, 1955.

MR. FRED G. AANDAH, *Assistant Secretary of the Interior,*
Department of the Interior,
Washington 25, D. C.

DEAR MR. AANDAH: I agree with your proposal that it would be a good idea to extend for another 5 years the Saline Water Act of 1952 which expires July 15, 1957. I am of the opinion that considerable progress has been made and if the project is not extended much of the effort which has been expended would be lost.

Please call upon me if I may be of any service to you in securing passage of legislation extending the original Saline Water Act.

Sincerely yours,

G. D. HUMPHREY, *President.*

ABERDEEN AMERICAN-NEWS,
Aberdeen, S. Dak., January 7, 1955.

MR. FRED G. AANDAH, *Assistant Secretary of the Interior,*
United States Department of the Interior,
Office of the Secretary, Washington 25, D. C.

DEAR MR. SECRETARY: I have your January 4 letter and am in complete accord with the decision to recommend that the Congress be requested to extend the present Saline Water Act of 1952 for a period of 5 years.

It is my personal observation that more and more people have become aware of the water shortage looming in various sections of the United States and it seems to me that this problem now has become a paramount one which must be resolved.

With kindest regards,
Yours very truly,

HENRY J. SCHMITT,
Editor and Publisher.

THE UNIVERSITY OF CALIFORNIA,
January 31, 1955.

Re Saline Water conversion program

MR. FRED G. AANDAH, *Assistant Secretary of the Interior, Department of the Interior,*
Office of the Secretary, Washington 25, D. C.

DEAR MR. AANDAH: In reply to your letter of January 4 concerning a 5-year extension of the Saline Water Act, and following a conference with Prof. Everett D. Howe, it would seem to me that the progress of work to date and the prospect of getting significant research fully under way would warrant the proposed extension.

It was a source of satisfaction to learn that you also believe that results obtained thus far are sufficiently encouraging to indicate that economical conversion will be developed, provided research and development activities are given a reasonable

time in which to cope with this significant problem. While some may be deluded into believing that research is simply a process of waving a magic wand, or its results can be assured merely by the size of appropriations or the urgency of deadlines, I am happy that there are those who realize that it is a human process warranting not only the economical marshalling of the best brains of the Nation, but also requiring careful programing, precise knowledge of developments, and many tedious man-hours of the most exacting type of human endeavor—spurred by faith in the promise of results and not by any guaranty, man-given or otherwise.

I commend you and your colleagues for the recently completed mission to inspect research and development in water conversion throughout Europe and Northwest Africa, and I am happy that our Professor Howe was privileged to participate as a member.

Yours sincerely,

ROBERT GORDON SPROUL,
President of the University.

BALTIMORE 1, MD., January 10, 1955.

Mr. FRED G. AANDAH, *Assistant Secretary of the Interior, Saline Water Conversion Program, United States Department of the Interior, Office of the Secretary, Washington 25, D. C.*

MY DEAR MR. AANDAH: It is with interest and satisfaction that I note that it is the intention of the Department of the Interior to recommend to the Congress the extension of the Saline Water Act of 1952 for a period of 5 years.

To suspend this work late next year would, in my opinion, be a serious setback to the solution of this problem which is vitally necessary to the future welfare of the Nation. Each year water shortages in parts of our country, as well as elsewhere in the world, increase in gravity. In many cases converted saline water appears to be the only remedy for these conditions.

For many years desalting of water in arid or semiarid regions has been discussed pro and con. Usually, comments or proposals have lacked in practicable application and often have been oblivious to the vital matter of cost of production.

In my judgment, the Department of the Interior has approached the problem in a realistic manner and has developed methods of attack which will in time prove successful. Few who have seriously thought on this problem will minimize the difficulties which must be overcome or the time which will be required to find a satisfactory answer, but it is equally true that few will doubt that the time will come when water from this source must be widely used in our country.

I am sure that many will join with me in the hope that this program will be placed on a permanent and continuing basis.

Sincerely yours,

SHEPPARD T. POWELL, *Consulting Engineer.*

SOUTHWEST RESEARCH INSTITUTE,
San Antonio 6, Tex., January 6, 1955.

Mr. FRED G. AANDAH, *United States Department of the Interior, Office of the Secretary, Saline Water Conversion Program, Washington 25, D. C.*

DEAR SECRETARY AANDAH: I have your letter requesting comments on the proposed extension of the Saline Water Conversion Program Act for an additional 5 years.

In the chemical industry it is generally accepted that the average time from conception to marketing of a new product is approximately 7 years. For the more complicated or advanced products or processes the development time is of course even longer. The saline water program is developing a major new chemical process in an extremely difficult field and it is only to be expected that more than 5 years will be required.

In July 1953 in one of my speeches on saline water conversion, I estimated that it would take 5 years to develop processes economically useful on brackish waters and to determine whether or not sea water reclamation would be feasible—also that if proven feasible it would then take another 10 years before sea water conversion plants were in successful operation.

In another speech first given in July 1954, I indicated that progress had been better than previously anticipated but that it would still be 3 to 4 years, i. e., 1957-58 before feasibility were shown. Transcripts of both of these talks with the pertinent passages marked in red are enclosed.

Although the progress in the last 6 months has been satisfactory there is nothing to indicate that this time schedule can be appreciably shortened. This means that by the end of the present act, we will probably know whether sea water reclamation will ever be feasible. It will then take us at least the additional 5 years requested in order to fully develop a feasible process.

I do not believe that the legislature can question the amount of research expenditures under the act. Actually out of every \$14,000 spent annually for research and development in the Nation—only \$1 goes for the research effort of the saline water program. Or to put it another way, out of every \$9,000 spent by Government agencies for research and development only \$1 is spent on the saline water conversion research effort. This despite the judgment of many that, after defense, water is the No. 1 problem in the Nation's welfare.

Cordially yours,

LOUIS KOENIG,
Associate Director.

PURDUE UNIVERSITY,
Lafayette, Ind., February 15, 1955.

HON. FRED G. AANDAHL,
Assistant Secretary of the Interior,
Washington, D. C.

MY DEAR MR. SECRETARY: I have discussed the saline water research program of the Department of the Interior with various members of the Purdue University staff. I join them in the opinion that this program has been a most worthwhile one and that it would be highly desirable to continue the research beyond the present expiration date of the act supporting this program. The gradual diminution of our basic water resources poses a serious future threat to all aspects of our economy. It is self-evident that a vigorous research program concerned with the recovery or production of potable water from both sea water sources and available brackish water sources is one of the most promising methods of insuring adequate future water supply.

There are several current research projects of your saline water conversion program which show promise of bringing at least a partial solution to the problem. In addition, the mere existence of this program serves to call to the attention of the scientists of the country the need for further research in the solution of this most pressing need of the country. The great need for this program is the generation of new ideas. The greatest probability of generating these new ideas is through an active research program. Certainly conservation of water resources through research is an appropriate area for support by the Federal Government.

I should be most pleased, therefore, to go on record as favoring the extension of the present act for a period of 5 years with an additional year to evaluate the results of the research program.

Yours sincerely,

FREDERICK L. HOVDE, *President.*

FEBRUARY 12, 1955.

FRED G. AANDAHL,
Assistant Secretary of the Interior,
Washington, D. C.:

The saline water conversion program is examining all lines of approach to this important problem. Though there are attractive possibilities it is clear that an extensive program of research is still required before practical methods of water rectification can be achieved. I would strongly urge a continuation of the authority for the program with continued careful evaluation of its progress and of proposals for future expenditures.

(Signed) L. A. DuBRIDGE,
President, California Institute of Technology.

Mr. FRYE. Although certain of the legislation proposed prior to 1952 would have provided for immediate construction and operation of a full size sea water conversion plant at a cost of some \$25 million,

extensive hearings before this committee during the 1st session of the 82d Congress revealed that processes for the economical production of large quantities of fresh water at low cost did not then exist. Scientists and engineers, testifying at these hearings, established this fact quite clearly. As a result, the Congress concluded that large expenditure of Federal funds would not be justified. Instead, it provided for the development of processes, by means of research grants and contracts.

With this approach scientists and engineers have given their support to the program as is illustrated by the letters which have been submitted for the record, received from Dr. Langelier of the University of California and from Dr. Sherwood of the Massachusetts Institute of Technology. Dr. Langelier states:

I am favorably impressed with the methods which are being employed by your office in carrying out its assignment. Your initial publication *Demineralization of Saline Water* is excellent. The treatment of the subject is factual with just enough optimism to encourage the investigator and yet enough pessimism to quiet the unjustified claims which were broadcast about a year ago.

These claims have given the impression that all that was necessary to obtain cheap fresh water from the sea would be to build a large-scale demonstration plant. Dr. Sherwood is here today, to testify as the representative of Dr. J. R. Killian, president of MIT, who is one of the Secretary's advisers on this program.

As pointed out in my report on S. 516, as processes are developed in the laboratory, pilot plants or field tests become necessary in order to obtain operating information, engineering design data, and test results upon which more accurate cost estimates can be made. The cost of such experimental plants varies with the type of process. They can become relatively expensive. For example, in a conversion method proposed by Dr. W. L. Badger, a recognized authority on evaporation, it may be necessary to build a pilot plant which may cost \$150,000 to \$200,000 in order to solve one major problem—scaling—which is inherent in the process and to verify the economic feasibility of the process as predicted by his analysis.

The solution of difficult technical problems by means of scientific research takes time. The rate of progress cannot necessarily be increased by the appropriation of large sums of money. However, the progress made in the development of saline water conversion methods under this program has been quite rapid. From my own observations and from reports I have received from various parts of the country, I believe that the progress being made under the saline water conversion program is satisfactory and that the encouraging results to date justify amending the original act as is proposed in S. 516.

Senator ANDERSON. I have just one comment on this. If you would read the story of the development of the atom-powered submarine, you would almost recognize some language in here. The rate of progress could not be increased by large sums of money. If certain phases of the Navy had its way, we would not have had the atomic-powered submarine for years. But Admiral Rickover said we will jump these places, although we may come back, and we will start out. I believe in a nice conservative method. I believe we are almost coming to the point where we will have to jump some of the early hurdles and try while at the same time remaining conservative in another type of program. In other words, it is possible to do both

things at the same time—continue to build a sound program, and at the same time take a little gamble to get the supplies of water which I think we will need at the earliest possible time.

STATEMENT OF DAVID JENKINS, DIRECTOR OF THE SALINE WATER CONVERSION PROGRAM

Mr. JENKINS. Thank you, Mr. Chairman. I have a prepared statement for the record of considerable length which I believe is before you. I should like to briefly summarize certain points in that statement.

I would like to say first that although I have been in the Federal civil service since 1929, this is the first opportunity I have had to meet before this committee, and I appreciate the honor of doing so.

We also have, as was mentioned, one other witness, Dr. Sherwood of Massachusetts Institute of Technology, and with me today are the three technical staff members of the saline water conversion program, Dr. W. S. Gilliam, physical chemist, Mr. J. J. Strobel, chemical engineer, and Mr. Allen Cywin, a mechanical engineer. I may wish to call on these gentlemen to answer technical questions.

The need for additional fresh water from the oceans and for improving the many salty waters of our inland States was well established some time ago, and therefore I thought unless the committee especially desired otherwise, I would not repeat those needs, which are even greater today than they were in 1952.

As this is the first opportunity we have had to meet before this committee since the program was organized, it was thought that the committee might like to know a little of the method of operation.

Among the material before you is a chart which I should like to refer to, and first I should like to point out that because the activity was related to several of the Bureaus in the Department, each of which was in a position to make some technical contribution, the responsibility for the program was placed in the Office of the Secretary by former Secretary Chapman.

Then in the spring of 1953, following very careful review, the present administration confirmed that the work could be handled best in the Office of the Secretary, rather than in one of the bureaus, and on October 8, 1953, Secretary McKay assigned the responsibility to the Assistant Secretary for Water and Power Development. It now operates as a part of his office.

In general, the procedures for the program were patterned after the large research organizations of the Government, such as the National Science Foundation and the Department of Defense. We endeavored to take advantage of the experiences gained by those large organizations, particularly since this was a new type of doing business in the Department of the Interior.

Referring to the chart, the group of nine eminent leaders of educational, scientific, and industrial organizations, the advisers, provide the Secretary with advice on broad policy matters. It has been very gratifying to know that of the nine original advisers who agreed to serve in that capacity in 1952, all are continuing to serve at present.

Then on the left of the chart, under coordination, the research is continuously coordinated with private organizations and other Government agencies, including the Department of Defense, in

accordance with requirements of the Saline Water Act, and with the National Science Foundation, with which a cooperative agreement exists. Other governmental organizations are those listed, and the question was asked a few moments ago about cooperation with the Civil Defense Agency and the Atomic Energy Commission.

We have established active cooperation with both, and some of the problems that were mentioned a few minutes ago have been discussed and attempts have been made to reach conclusions with those agencies as to the needs of equipment for civil-defense use, and also the need for and possibilities of the use of atomic energy.

Senator ANDERSON. If you thought I was suggesting the use of atomic energy as a cheap source of power in this, you missed entirely what I was saying.

Mr. JENKINS. No, sir. I understood that you thought that close liaison and cooperation should be maintained with that organization.

Senator ANDERSON. Only because of the possibility of some day an atomic attack by devices which might have atomic warheads, and which very quickly could change the whole picture as to the usability of water now stored in a reservoir or the actual destruction of the reservoir itself. You recognize, I am sure, the dependence of New York City upon its reservoir for its water supply.

Mr. JENKINS. Yes, sir.

Senator ANDERSON. If those could be knocked out as they could very easily by an atomic device, New York City would not be able to exist. It has no other alternative source of water. The possibility of using sea water is a very attractive resource, which I think the Atomic Energy Commission and the Civil Defense office might profitably explore with you.

Mr. JENKINS. We have been exploring that possibility. It has not been possible actually to do anything about it yet. The Civil Defense has advised that they do not have research funds, and we have done what we could in this program to develop better processes that might possibly be used for that purpose.

Then another word or two as to the organization. There is a Saline Water Conversion Committee in the Department which consists of one representative each from the Bureau of Mines, Bureau of Reclamation, and the Geological Survey. The responsibility of the management of the program, of course, is that of the program director and his staff, but panels of consultants provide very highly specialized scientific assistance in many ways. That group of about 35 or 40 whose names are listed on page 41 of the annual report before you, Mr. Chairman, represent some of the leading authorities in the special fields relating to this activity. It has been a source of considerable satisfaction to me that we have been able to engage people of this caliber.

Senator ANDERSON. Would you mind indicating from this chart which has to do with the contracts now in existence just what contribution you hope to have from these 1955 contracts? The first is Nuclear Development Associates, research of extraction of fresh water from sea water in the super critical state.

Mr. JENKINS. Yes, sir. That is the principle mentioned briefly by Senator Case, which was investigated earlier by the Swedish scientist, Baltzar von Platen, and was considered by this committee in 1951. That process would separate sea water by the use of extremely high

temperatures and pressures. There are several physical advantages. One is that at or above the pressure and temperature referred to as the critical pressure and temperature water has only one state, that is, the gaseous and liquid state are indistinguishable. Salt water behaves slightly differently, considerably above that state, and there a separation takes place without what we know as the loss of the latent heat of evaporation.

The second advantage is that at those high pressures and temperatures the heat exchange rates are very, very, high. It is felt that if two problems which confronted the Swedish investigators can be solved, and we believe that at least one of them is now solvable, that process might offer very attractive economic possibilities. Those two problems are corrosion and the formation of scale, in the apparatus. The corrosion we believe is now solvable by the development of improved metals which were not available 15 years ago.

We don't know about the scale formation, and that is the matter that is being investigated under this contract that you asked about.

Unless the scale-formation problem can be solved, we would not go forward with that process.

Senator ANDERSON. What about half the money going to Nuclear Development Associates? Are they particular specialists in the scale problem?

Mr. JENKINS. They are specialists in this particular field of high-pressure and high-temperature distillation. They have carried on quite a bit of work in that field for the Atomic Energy Commission. It is that experience that we draw on.

Would you like to run through the contracts?

Senator ANDERSON. No. I just notice that the next one is to the University of Florida, for the investigation of possible uses of ultrasonics in the mineralization of saline waters, less than \$5,000, which seems a pretty small sum of money in the scope of the work that some of us think needs to be done.

Mr. JENKINS. These various contracts range from a few thousand dollars to \$90,000, so far, depending on the job to be done. Here a professor at the University of Florida who has carried on a great deal of work in the use of ultrasonics, feels that it is possible to effect a separation of salt from salt water by the use of ultrasonics. He has carried on a little work in his laboratory. All that we are asking him to do here is to prove that it can be done. If he can demonstrate that it can be done with some glassware in the laboratory, and also identify the basic scientific laws which cause this separation, then there will be in order a research and development contract. We usually try to start that way when we are not sure.

Senator ANDERSON. Do you feel that these projects push forward as rapidly as possible the possibility of developing potable water from sea water?

Mr. JENKINS. Senator Anderson, the great problem in this entire program is to obtain new ideas. At the time the program was initiated, it was felt that all of the work in distillation and two or three other means of separating water had been done, and of course the objective here is to bring down the cost. What we need here is more ideas.

Senator Case mentioned that there had been in the neighborhood of 500 different suggestions that have been received. These are ideas.

More than 400 were weeded out rather quickly. The others were worked over very carefully to see whether they were sound, and out of that number some 26 research contracts were let after this group of consultants had examined the proposals very carefully. We still need ideas, however.

In answer to your question, I would say that probably we are not doing everything that could be done to exhaust the ideas in the scientific minds of the country, but we are doing all that we are able to do at present. I expect it would be possible to send more people to visit with the scientific organizations and to spread the information of the need for additional ideas.

Senator ANDERSON. Do you see any urgency about this?

Mr. JENKINS. Yes, sir.

Senator ANDERSON. If there is any urgency about it, then you ought to be doing everything that can be done or asking for enough money to do everything which can be done, should you not?

Mr. JENKINS. I think that under the amendment that we will be able to do all that can be done as far as stimulating ideas is concerned.

Senator ANDERSON. What about testing ideas?

Mr. JENKINS. Yes, we need to test the ideas. Under that amendment, I think we have as much money as we can foresee needs for at present. I would like to repeat that it is ideas that we are short of.

If I may refer to one of the publications before you entitled, "Demineralization of Saline Waters," this dearth of ideas was recognized in the beginning, and on pages 5, 6, and 7 of that brochure, an effort was made to list all of the possible processes and phenomena that might be studied or developed for this purpose. That brochure was sent to several thousand people with the invitation to submit their ideas. That was the source of many of the 500 replies.

Since then a number of efforts have been made to interest people further. We look upon the responsibility in the Department as being twofold. One of stimulating interest in this subject in private industry, and the other carrying on the actual research program with Government funds.

If there are no further questions on the two pamphlets, shall I continue with my statement?

Senator ANDERSON. Yes.

Mr. JENKINS. It was necessary in the beginning to establish some kind of a yardstick by which to measure progress. It was felt that a good beginning basis was to compare the probable conversion costs with the prevailing water prices. In 1952, at the beginning of the program, the cost of converting sea water to fresh water by the best existing processes, but with small units, was estimated at \$1,500 an acre-foot, and it was estimated that if much larger plants of this type were built, the cost might be four to five hundred dollars an acre-foot. The price that industries and municipalities and irrigation might pay varies considerably, but the maximum that had been paid was used as a criterion for the first objective of the program, and that was irrigation water at approximately \$40 an acre-foot, and municipal water at approximately \$100 an acre-foot. It was felt that if we could reduce the costs down in that neighborhood in this first 5-year period, then we would be justified in a second stage.

Those cost criteria were necessary. To me, Mr. Chairman, they have been a little like the subject that was mentioned recently of

attempting to determine the value of the electric light in 1890. If we had attempted to set a cost criterion for what light would cost, we could have compared it only with window glass or oil lamps. That would be true in supplying light where light had already been used. But electric light is used in many places where other light was never used. This program of extracting fresh water from sea water opens the opportunity of providing water where water was never used before in many places in the world. Therefore, these cost criteria must be adjusted as we go along.

I wanted to mention a few of the processes that are under development. One was discussed briefly by Senator Case. Then you asked about the process at Nuclear Development Associates.

The vapor compression distillation, which Senator Case mentioned, was one that was used during the war for many small stills, and we were informed at the beginning of the program that major reductions in the cost of producing water by that process simply were no longer possible. For a few months we accepted that conclusion reached by others in the Government and elsewhere. After the program got underway, it was found that in the past 10 or 15 years essentially no major improvements had been made in what appeared to be the best distillation process.

Accordingly, then, a number of research and development contracts were let in that field, and those contractors include the Badger Manufacturing Co., developing the Hickman still, and Yale University, and the Heinz Engineering Co. The Hickman process, although it is yet in a small scale, we believe may make possible the production of fresh water for about a fourth the cost of distilling the water by the most economical process in use at the beginning of the program. The contract in effect at Badger Manufacturing Co. consists of four parts.

First, we felt that it was necessary to test Dr. Hickman's still, that he had built on his own funds, on sea water. It had never been operated on sea water. After many improvements and expenditures of nearly \$10,000, it was made to operate on sea water, and successfully did so. Many of the problems that have been inherent in this vapor compression process were not present in that particular still. One was the formation of scale. There was no scaling whatsoever.

The second part was the construction and testing on a research model of considerably larger size and that has been completed within the past month. That is, the construction of the apparatus has been completed and tests are under way at present.

The third and fourth parts are the preliminary and detailed designs of an actual operating model capable of producing 25,000 gallons of water a day from sea water. Those designs are expected around the first of August. Then, of course, a further contract for actual construction and field testing—pilot plant testing, that is—at a seashore location will be in order for next year.

The electric membrane process, also mentioned by Senator Case, is one which was mentioned briefly to the committee in 1952, and is the result of some laboratory tests that had been made on a small unit in Boston, developed by Ionics, Inc. It was decided to test certain brackish waters from the Midwest on that unit. It was found with numerous assumptions and estimates, because the unit was small,

that it would be possible to improve that particular water, which was only slightly brackish, at a cost of about \$16 an acre-foot.

Then after the program was started, that equipment was improved and enlarged, and a subsequent contract for laboratory testing of a larger unit resulted in a much lower cost, using the same assumptions, or about \$4 an acre-foot.

A water from Arizona was also tested on the improved equipment. That was about four times as saline as the South Dakota water. It was estimated that treatment of that water would cost about \$20 an acre-foot.

Those results were sufficiently promising that it was decided to let a contract with a firm for field testing of a larger unit to work out field problems that could not be foreseen in the laboratory, and to determine the durability, particularly of the membranes in this project.

This is being done under a contract in Arizona and South Dakota. In Arizona, the water is a well water being used for irrigation, containing about 4,500 parts per million or in the neighborhood of at least double that which is recommended for irrigation of any crops. All that can be raised in that land at present are salt resistant crops, such as sorghum, cotton and alfalfa, whereas 15 or 18 years ago specialty crops were raised. If this process is successful, it would appear that high value crops might again be produced in that area.

Research on membranes is being carried out at Brooklyn Polytechnic Institute under the program, and independently by the Rohm & Haas Co. of Philadelphia, Permutit Co. of New York, and Gulf Research & Development. However, we feel that because of the complexity of the membrane research—a field known as organic synthesis—and also the limited number of scientists actually experienced in such work, it would be almost impossible to have too much work going on in that particular field.

The use of solar energy to extract fresh water is also attractive, not only from the standpoint of the low cost of energy, if indeed it is low cost, but from the viewpoint of national conservation of fuels, of course. To be attractive, lower cost equipment of greater efficiency is needed and research is being carried out in an effort to discover ways and means of bringing about improvements in such processes. That research includes basic designs being carried out at the New York University and by a private scientist, Dr. George Lof of Denver, and the possible use of plastics to reduce the cost, being carried out by the Bjorksten Laboratories, at Madison, Wis., and a number of small-scale experiments by the University of California.

Other processes that were suggested originally under this program and not worked on before for this purpose, and on which considerable success is being achieved are the osmotic processes being developed at the University of Florida and University of California at Los Angeles. Still a different adaptation of this process has been suggested by Dr. Murphy of the State University of New York. Dr. Murphy has been working, Mr. Chairman, under an exploratory type of contract in which we really employed him to think about this subject. As a result of about a year and a half of study, of all of the processes, he has now suggested one which is different from any before, and which has potentialities.

Then there is a solvent extraction process being studied at the Texas A. and M. Research Foundation. The separation of salt water

by freezing is being studied at the Applied Science Laboratories at State College, Pennsylvania, and at the University of Washington at Seattle.

In my prepared statement there was also mentioned the need for the extension of the legislation at this time. Under the provisions of the present act all of the actual research under the contracts and all reports and all correlation and coordination of data must be completed by July 15, 1957. That opinion was rendered by the Solicitor of the Department of the Interior, and it simply meant that contract research would have to be concluded just about the time we reached into the better, more interesting and productive part of this program. With your permission I should like to submit for the record a copy of that Solicitor's opinion.

Senator ANDERSON. Very well.

(The information referred to follows:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SOLICITOR,
Washington 25, D. C., November 23, 1954.

Memorandum

To: Director, Saline Water Conversion Program.

From: Acting Solicitor.

Subject: Limitations on funds—Saline Water Act.

Your memorandum of October 22 requests my opinion as to the legality of contracting for the performance of services pursuant to the act of July 3, 1952 (42 U. S. C. sec. 1951 et seq.), when such services would extend beyond the 5-year period prescribed in section 8 of the act.

You have advised that:

"* * * The contract research for which these funds [appropriation made pursuant to the act] are used each year is for work performed over a period usually extending beyond the end of the fiscal year in which the contract is executed. The term of such contracts averages about 1 year but in some cases may be 2 or 3 years. Thus funds appropriated during the final and fourth year of the program would ordinarily be used for research some of which would be performed subsequent to July 3, 1957."

Section 8 of the act of July 3, 1952 (42 U. S. C. sec. 1958), reads as follows:

"There are authorized to be appropriated, from any funds in the Treasury not otherwise appropriated, such sums, not to exceed \$2,000,000, for a five-year period, to carry out the provisions of this Act: *Provided*, That departmental expenses for the correlation and coordination of information over such five-year period shall not exceed the sum of \$500,000: *Provided further*, That such departmental expenses shall be scheduled in equal amounts for each year of such period insofar as practicable."

Although this section speaks in terms of authorizing appropriations, its purpose clearly is to limit the amount that may be appropriated and the period of time during which such appropriations may be made and expended. The phrase "for a five-year" period relates not only to that period of time for which sums appropriated may be expended for services under research contracts and grants, but also to that period of time for which payments may be made for work performed by departmental employees on such activities. It is my view that contracts should not be entered into pursuant to the act which would extend beyond the 5-year period. Furthermore, it appears that such contracts should call for the termination of work and the submission of reports thereunder a sufficient time in advance of the expiration of the 5-year period for the Department to perform the correlation and coordination work within such 5-year period.

Because of the view expressed above, we should also answer the question "When does the 5-year period begin?" so that its termination may be known. I believe that such period must be construed as beginning with the date that appropriations were first made pursuant to the Saline Water Act and not from July 3, 1952, the date on which that act was approved. The limitation of the 5-year period is directly related to and contained in the appropriation section of the Saline Water Act as distinguished from its functional provisions. The first appropriation for the purpose of carrying out the provisions of the Saline Water

Act, in the amount of \$125,000, was made by the Supplemental Appropriation Act, 1953, approved July 15, 1952 (66 Stat. 637, 642). It is my view that the approval date of that appropriation act, July 15, 1952, must be considered as the date on which the "5-year period" was initiated.

J. REUEL ARMSTRONG, *Acting Solicitor.*

Mr. JENKINS. Mention has been made of the need for research in existing Government laboratories. The provision in the proposed amendment to permit the expenditure of up to \$500,000 for research to be conducted in existing Government laboratories would prove advantageous in a number of ways. Several individual private scientists in private life have ideas on processes that are worthy of at least exploratory research but they don't have laboratory facilities. Some would be agreeable to having their research carried out in Government laboratories, but in the absence of specific authority, that has not been done. Then there is a situation, occasionally, when Government scientists themselves have worthwhile research to propose, and we have received at least one quite worthwhile proposal from the Bureau of Reclamation for a practical freezing process to be used making use of the low temperatures in South Dakota, in demineralizing some of the waters there.

Then still another area in which operations in a Government laboratory are valuable is in making unbiased comparisons of processes and confirmation of the research results.

I should like to say that in addition to the work in the United States, work is being coordinated with similar work abroad, and it is believed essential that every scientific improvement or facility to solve the problem should be used and brought to bear regardless of where that ability might be. Program scientists and consultants are obtaining technical assistance from abroad, both by correspondence and personal visits, and it is planned to continue such exchange of technical assistance and cooperation where such cooperation would be clearly of advantage to the United States.

In my prepared statement I had a short discussion of the subject of the use of atomic energy because of the fact that considerable mention has been made in the press from time to time of the possibility of using atomic energy to convert sea water. Through the cooperation of the Atomic Energy Commission this subject has been explored. I should like to refer you to page 24, Mr. Chairman, of the third annual report, in which the joint conclusions of the Atomic Energy Commission and the Department of Interior in this respect have been set forth. I should like to place these into the record, with your permission.

Senator ANDERSON. Could we not just have them inserted in the record?

Page 24, the entire item starting with "Atomic Energy Commission." That will be done.

(The information referred to follows:)

ATOMIC ENERGY COMMISSION

In view of the extensive research that is carried on by the Atomic Energy Commission in numerous fields, some of which might bear upon the demineralization problem, direct liaison is carried out between the saline water conversion program and the Commission. As a result of that liaison the following conclusions have been reached:

(1) Direct use of nuclear fission for separation of salt from water is not foreseen at this time.

(2) Either heat or electrical energy produced by reactor plants could be used in various demineralization processes. However, as this energy is now no less costly than that from conventional sources, there appears to be no advantage in considering its use for this purpose at this time.

(3) This source of energy should be used in any established demineralization process only if its gross cost allocable to the process is less than the cost of other available energy at the site.

However, either the reduction of cost of energy from reactor plants which may be achieved in the rapidly developing program of industrial uses of nuclear energy, or the successful development of vastly improved demineralization processes could modify these conclusions significantly.

Liaison with the Atomic Energy Commission is being continued.

Mr. JENKINS. It was hoped that representatives of the Atomic Energy Commission might attend this hearing. We discussed the matter with them yesterday and were advised that if the committee wished to request someone to appear they would, of course, be glad to do so.

Thank you, Mr. Chairman.

(The statement referred to follows:)

STATEMENT OF DAVID S. JENKINS, DIRECTOR, SALINE WATER CONVERSION PROGRAM

Mr. Chairman and members of the committee, my testimony consists of factual information on saline water conversion, for your use in consideration of the proposed amendment S. 516 to the Saline Water Act of 1952.

The need for additional fresh water throughout the world and the need for removing some of the salinity of many of our inland streams and underground waters was thoroughly established by this committee and other committees of the Congress prior to enactment of Public Law 448. Therefore, unless the committee especially desires otherwise, I shall not again discuss those needs, which are even greater today than they were in 1952. Instead, my remarks pertain primarily to process development and the present program.

I. ORGANIZATION OF PROGRAM AND METHODS OF OPERATION

Because the activity was directly related to several of the bureaus in the Department, each of which was in a position to make some technical contribution, the responsibility of the program was placed in the Office of the Secretary by order of former Secretary Chapman on December 16, 1952. Then in the spring of 1953, following a careful analysis of the activity, the present administration confirmed that the work could be handled best in the Office of the Secretary rather than in one of the bureaus, and on October 8, 1953, Secretary McKay assigned the responsibility to the Assistant Secretary for Water and Power Development. It now operates as a part of his office.

Referring to the chart appended to this statement: A group of nine eminent leaders of educational, scientific, and industrial organizations provide the Secretary with advice on broad policy matters. The advisers provide this service without cost to the Government, except for occasional travel expenses. Of the nine original advisers all are continuing to serve. They are:

Dr. Robert G. Sproul, president, University of California, Berkeley
 Dr. Lee A. DuBridge, president, California Institute of Technology
 Dr. George D. Humphrey, president, University of Wyoming
 Dr. Louis Koenig, associate director, Southwest Research Institute
 Mr. Henry J. Schmitt, editor and publisher, Aberdeen, S. Dak., American-News
 Mr. J. J. Cronin, vice president, General Motors Corps.
 Dr. Frederick L. Hovde, president, Purdue University
 Mr. Sheppard T. Powell, consulting engineer of Baltimore, Md.
 Dr. James R. Killian, Jr., president, Massachusetts Institute of Technology

A two-day meeting of the advisers was held in April 1954. Their recommendations made at that time appear in the appendix to this statement.

A Saline Water Conversion Committee (departmental); consisting of one representative each from the Office of the Assistant Secretary for Water and Power Development, the Bureau of Reclamation, the Bureau of Mines, and the Geo-

logical Survey; provides advice and assistance in such matters as development and review of the program, exchange of information, and preparation of the annual reports.

The research is continuously coordinated with private organizations and other Government agencies, including the Department of Defense in accordance with section 3 of Public Law 448, and the National Science Foundation with which a cooperative agreement exists. Other governmental organizations with which cooperation has been established include the Atomic Energy Commission, the Smithsonian Institution, the Federal Civil Defense Agency, the Department of Agriculture, the Department of State, the Foreign Operations Administration, and the Department of Commerce.

The responsibility for the management of the program including both the coordination activities and the direction of the widely diversified contract research is that of the program director and his staff.

Panels of consultants provide highly specialized scientific assistance in such ways as evaluating proposed research and final results, making technical analysis of existing processes and numerous others.

At present all the actual research and development is performed by the contractors.

This organization has proved adequate except for some difficulty in obtaining qualified scientific assistance in this highly specialized work, as is necessary to supervise the contract research, assure continuing interest and a flow of new ideas which are still very much needed, and handle the technical and administrative actions in connection with dispersed research of this kind.

II. PROGRESS

At the beginning of the program, the cost of converting sea water to fresh water by the best existing processes—the distillation process with relatively small units—was estimated at about \$5 a thousand gallons, or some \$1,500 an acre-foot, and it was estimated that if much larger plants of this type were built, also using existing principles, the cost would be \$1.25–\$1.50 a thousand gallons (\$400 to \$500 an acre-foot).

Two arbitrary cost criteria were set for the initial phase of the program, one for water for municipal and similar purposes at about \$100 to \$125 an acre-foot, and one for irrigation water at about \$40 per acre-foot. They were believed, on the basis of data then available, to represent about the maximum that could be borne by these types of use in continental United States. It was felt that if these goals could be approached or reached, further intensive research and development would be justified to reduce costs. Although considerable work remains to be done before those initial goals are fully realized, they are being approached and it is believed will be materially lowered if the research, and particularly the development work, is continued.

Because this disparity between the existing costs and the objectives was very large, and because improvements in the few existing processes had almost ceased to occur, it was necessary in the beginning to consider every possible solution to the problem, however remote the chances of success might seem originally. The first step was the preparation of as nearly complete an outline of possible processes as could be conceived, as shown in the brochure entitled "Demineralization of Saline Waters," pages 5, 6, and 7. It will be seen that most of the conceivable physical (p. 5), chemical, and electrical processes (p. 6), and energy sources needed therefor (p. 7) are listed. Those pages and the introductory matter thereto on pages 1–4 of the brochure are included in the appendix to this statement.

This brochure was sent to several hundred scientific organizations and individuals believed qualified and interested in considering the subject, with the request that proposals for scientific research in accordance with the outline, or on any other processes not included there but relating directly to saline water conversion be submitted. It was recognized that eventually some processes would be eliminated as unfeasible, some would be developed through various stages, and in some no interest might exist, yet they should be explored.

No single process will provide fresh water for all purposes at all locations and under all circumstances. Thus it is desirable that several different principles, processes, and combination of processes be investigated and developed concurrently. Furthermore, it would certainly not be desirable to place all reliance on 1 or 2 processes to the exclusion of others when none has so far reached the final low cost necessary.

Good results are being obtained, and it now appears that in time conversion of both brackish and sea water will be feasible. Twenty-four research and development contracts have been let, several have been completed, and 7 or 8 very promising results have been obtained. One process is being field-tested, and 1 or 2 others show sufficient promise to justify field tests in a year or earlier. A list of the 26 contracts which have been let, and of some prospective future contracts, is attached to this statement.

At this time a few of the more outstanding processes being developed under the program can be summarized.

Vapor compression distillation

At the beginning of the program it was the consensus of those most familiar with vapor compression distillation development that major reductions in the cost of producing water by this process were no longer possible. After the program got underway it was found that during the past 10 years essentially no major improvements had been made in this—the best existing process, and that new approaches to the problem might result in substantial cost reduction.

Accordingly, a number of research and development contracts have been undertaken under the program for research on various aspects of the vapor compression distillation process. The contractors include the Badger Manufacturing Co., Yale University, Heinz Engineering Co.

The possibilities of obtaining fresh water from sea water at a price which might be afforded by municipal or industrial users have been greatly enhanced by the development of the Hickman still. Although yet in its infancy, this process, being investigated by contract with the Badger Manufacturing Co., of Cambridge, Mass., may make possible production of fresh water from sea water for about one-fourth the cost of distilling sea water by the most economical process in use at present. Field tests at some seashore locations are being planned.

Research under the direction of Profs. Barnett F. Dodge and Harding Bliss at Yale University also seeks to bring down the cost of vapor compression distillation by increasing heat transfer rates in the evaporation units. The approach has been the use of forced circulation coupled with dropwise condensation of the water vapor. Encouraging results have been reported.

The Heinz Engineering Co. has attacked the problem of finding the proper balance of design factors so that particular vapor compression distillation systems can be arranged to operate at maximum economy. The work includes development of design and cost data on vapor compression distillation plants with compressors driven by steam turbines exhausting into the vapor compression cycle.

Dr. W. L. Badger of Ann Arbor, Mich., is investigating the use of vapor compression distillation in combination with multiple-effect evaporation. Preliminary estimates by the contractor indicate that by this method large-scale demineralization costs can be reduced appreciably below present-day costs by conventional means using either process separately.

Electric membrane processes

At the time the program began, work had already been underway first in Europe and later in the United States on methods of using synthetic resin membranes with electric current to purify industrial fluids, such as sugar solutions. Later, this process was investigated in Holland and England for desalting water, and in 1950 two American groups began limited research work on membrane processes for this purpose.

Some members of this committee will recall that reports concerning the economies of one such membrane process appeared in the press shortly before this program was authorized. As a result of laboratory tests on the small 1952 unit which had been developed previously by Ionics, Inc., the cost of desalting a certain slightly brackish South Dakota water for irrigation uses was estimated to be about \$16 an acre-foot.

After the program was started, the equipment was improved and enlarged, and a subsequent contract for laboratory testing a larger unit resulted in a much lower cost for purifying the same South Dakota water—about \$4 an acre-foot. Under that same contract more saline water from Arizona was tested on the improved equipment. This water was about four times as saline as the South Dakota water. Based on the tests it was estimated that the cost of purifying that water would be about \$20 an acre-foot.

These promising results obtained in the laboratory on brackish waters warranted the field testing of this one firm's equipment. This is being done under contract in Arizona and South Dakota. Overall costs of producing water are progressively

being reduced. However, much improvement of membranes and cell design is necessary. Because of the complexity of membrane research, and the limited number of scientists actually experienced in this field either in this country or abroad, it would be almost impossible to have too much work going on in this field. Research on membranes is being carried on at Brooklyn Polytechnic Institute under the program, and independently by Rohm & Haas Co., of Philadelphia, Permutit Co. of New York, and Gulf Research & Development. Those firms, especially the first, have been very generous in sharing information on their work with the program.

Solar distillation

The role which power or energy plays in the entire conversion situation is of extreme importance. The minimum thermodynamic energy requirement for the separation of fresh water from sea water is 2.8 kilowatt-hours per 1,000 gallons regardless of the method used. This is the minimum energy required for an ideal process, with no losses or inefficiencies of any kind. Every real process will require more than the minimum figure and it appears that about four times this thermodynamic minimum is the best that one could hope to attain. Thus the cost of energy alone will be not less than about 12 cents a thousand gallons (\$40 an acre-foot), at 1 cent power or \$20 an acre-foot, using power at 5 mills. Investment and operation cost will probably at least equal the energy cost.

In addition to this power cost itself, any large conversion plant would require a very sizable block of commercial power which simply may not be available. At the rate just mentioned a plant to demineralize 1 million acre-feet of sea water a year would require a generating plant of 500,000 kilowatts installed capacity. Because of this need for energy it becomes important that nonconventional low-cost energy such as solar energy, windpower, geothermal energy, etc., be explored vigorously and exhaustively in connection with process development and use.

The use of solar energy to extract fresh water from sea water is also attractive from the viewpoint of national conservation of fuels. To become more attractive economically, lower-cost equipment of greater efficiency is needed. Research is being carried out in an effort to discover ways and means of bringing about those improvements. Such research includes, basic designs by Dr. Maria Telkes of New York University and Dr. G. O. G. Löf, Denver, Colo, use of plastics to reduce costs by Bjorksten Laboratories of Madison, Wis., and a number of small-scale experiments by the University of California.

Critical pressure devices

Separation of fresh water from sea water at pressures of 4,000 to 5,000 pounds per square inch pressures at temperatures in a 700 to 800° Fahrenheit range appears attractive energywise in a large scale. This principle of separating salt water was suggested earlier by the Swedish inventor Baltzar von Platen who also is given credit for having invented the Electrolux refrigerator. Von Platen and his associates stopped work because of problems now believed to be solvable namely corrosion and scale formations. Research is underway at Nuclear Development Associates, White Plains, N. Y., to determine the technical feasibility of the method. Two of the problems to be solved are those of corrosion and scale formations at these high temperatures and pressures.

Osmotic processes

A different way to use membranes to desalt water is by use of hydraulic pressure. Although theoretically possible, it was not until research workers at the University of Florida, under a program contract, discovered the right type of membranes that technical feasibility could be demonstrated. The work, so far, has been on a very small scale, in the laboratory and much remains to be done to develop a practical process. However, the results so far are encouraging.

Another approach to use of these principles is being investigated at the University of California at Los Angeles.

Still another method in this field which may prove to be very important is that proposed by Dr. Murphy, State University of New York. He is developing an osmotically power permselective membrane device using the energy of the sun instead of electrical energy.

Solvent extraction

There are possibilities for using solvents to take fresh water out of salt solution and leave the salt in the brine. Exploratory research at the Texas A. and M. Research Foundation has shown that solvents of that type do exist and that their properties make possible a technically feasible process for obtaining desalted water.

Additional research is being planned to determine whether economic feasibility appears possible.

Separation by freezing

Ice frozen from saline water contains much less salt than the original water. Although basically promising an economical method of separation by freezing has never been developed, because of numerous practical difficulties. Research at the Applied Science Laboratories, State College, Pa., and at the University of Washington at Seattle is now being carried out under the program in an effort to overcome these difficulties.

III. NEED FOR EXTENSION AT THIS TIME

The question may reasonably arise now as to whether an extension of the authorization period is desirable at this time, rather than at the close of the present 5-year period. One answer is this:

Under the provisions of the present act, all of the actual research under the contracts, all reports thereon, and all correlation and coordination of data must be completed by July 15, 1957.

Most research and development contracts are for a period of about a year. Thus it would be necessary to terminate most contracting by about December 1955, 9 months hence, to permit completion of the work under the contract by December 1956, and final reporting of the results and conclusions of the program 6 months later. Thus scarcely any of the appropriations for fiscal year 1957 could be utilized for contract research just at the time when the need for advanced research and development of promising processes is expected to be felt most. Moreover, research of this type is perforce, long range in character. Unless assurance can be given to the private firms and research organizations and particularly to individual private scientists whose ideas are needed that promising studies will be carried to completion, we anticipate difficulty in securing interest of scientists, and in achieving worthwhile results even in fiscal years 1956 and 1957.

Interruption or abandonment of the program after fiscal year 1957 would dissipate a large part of the valuable results already achieved or anticipated, with a consequent loss to the Government.

Furthermore, after two and a half years of work, it is now possible to foresee with greater assurance the chances of success of the entire program.

IV. NEED FOR SOME RESEARCH BY EXISTING GOVERNMENT LABORATORIES

The provision in the proposed amendment to permit an expenditure up to \$500,000 for research to be conducted in existing Government laboratories would prove advantageous in a number of ways. Several individual private scientists in private life have had ideas on processes worthy of at least exploratory research effort. However, they do not have laboratory facilities available. Some would be agreeable to having the research carried out at a Government laboratory, but in the absence of specific authority that has not been done. Thus the research has not been carried out. Then there is the situation where Government scientists themselves may have worthwhile research to propose, which they and their laboratory would be best qualified to perform. Another area in which operations in a Government laboratory are valuable is in making unbiased comparisons of processes and in confirmation of research results. In some cases, Federal scientific organizations offer the only satisfactory personnel and facilities to conduct certain investigations.

V. NEED FOR INCREASED AMOUNT OF AUTHORITY AND THE 25 PERCENT ADMINISTRATIVE EXPENSES

As provided in the proposed amendment additional funds would be necessary to carry forward the development of processes. It is usually necessary and desirable that the initial research on development of a process be conducted on a relatively small-scale laboratory basis. For such research only nominal expenditures have been required. Although much of this exploratory research needs to be continued, it was not considered to be the purpose of the program to limit the activities to basic, exploratory, or laboratory research. To accomplish the purposes of the act in developing processes on a scale sufficient to determine the feasibility of the development on a large-scale basis, pilot plants or field tests become necessary as individual processes which show sufficient promise are developed in the laboratory. Such tests are essential in order to obtain reliable

cost estimates and information on the durability of the unit and critical parts, down time, production capacity, power requirements, etc. Developmental work, including field tests of this type, is much more costly than laboratory investigations. However, nearly all such work is handled on a cost-plus-fixed-fee basis. Therefore, if it is adequately inspected and audited no unnecessary expenses are involved. I cannot emphasize too strongly the need for adequate inspection by qualified Government scientists, of all Government contract research work.

The proposed authorization for appropriation of a total of \$1,500,000 for departmental expenses is only a small increase on a per year basis of the amount authorized under the present act. From this fund would come not only departmental expenses for the 1953 to 1963 period, but also for the additional 2-year period for completion of research prospects and for the final 1-year period for correlating, coordinating and rounding out the results. It is expected that the small increase rate (from \$100,000 a year to approximately \$115,000) will cover the increased activity and the resultant increase in coordination and in supervision functions. Particularly as each process reaches the larger field testing stage is constant inspection needed. It has already been clearly shown in the one field test underway that personnel of high caliber, capable of discerning successes, failures and pitfalls and able to recommend changes in direction, must be on hand in addition to the skilled personnel of the contractor.

GENERAL

Every effort is being made to encourage private development of processes and as a result a few industrial firms have undertaken independent research in this field during the past year, and wholehearted cooperation has been received from several organizations now engaged in these activities. It is entirely possible also that some industrial firms may be working on processes without advising the Department of their activities.

In addition the work is being coordinated with that abroad, as it is believed to be essential that every scientific improvement or facility to solve this pressing national problem, be brought to bear, wherever such assistance may be. Program scientists and consultants are obtaining technical assistance from abroad both by correspondence and by personal visits. The latter have proven to be extremely productive. It is planned to continue such exchange of technical assistance and cooperation wherever it is clearly of advantage to the United States program to do so.

Senator ANDERSON. Dean Sherwood.

STATEMENT OF DR. THOMAS K. SHERWOOD, FORMERLY DEAN OF ENGINEERING, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Dean SHERWOOD. Thank you, Mr. Chairman. Would it be appropriate if I reviewed the program, and then attempt to answer any questions the committee might have?

Senator ANDERSON. Yes.

Dean SHERWOOD. I testified before the Joint Committee prior to the enactment of the legislation in 1951, at which time my testimony was mostly to do with two aspects of the problem. The first was a review of my study of the cost picture of existing processes, at that time, processes which I believe to be workable and in fact known processes, processes for which the cost data were available, and for which the cost data were quite reliable as engineering cost dataing. These costs at that time were essentially prohibitive from the point of view of the water needs of most communities and certainly for irrigation purposes. In fact, the best I could see at the time suggested a water cost of the order of magnitude of \$500 an acre-foot, which is the figure that Mr. Jenkins referred to as about the range of costs by existing processes at the time the legislation was first discussed.

My calculations of costs at that time were based on studies of such processes as ordinary multiple effect evaporation, of the vapor compression distillation operation as developed for the armed services during the war, and of a combination process involving both kinds of equipment.

As I say, the cost in relation to costs which even fairly desperate communities might develop, were not reasonable.

The other aspect of my testimony at that time related to the very large number of ideas which had been mentioned, which had been looked at briefly, which scientists and others had suggested from time to time, and on which there was not adequate information to estimate what the possibilities might be. It seemed to me very clear that among these there might be something well worth developing, and well worth promoting and that what was needed was what we called seed research, the kind of nurture of a nebulous idea that gets it to a point where somebody gets excited about it.

This is the hardest kind of research money to get. If you have some idea with numbers that look promising, you can get some people to spend money for it, but at the stage where it is just an idea, it is hard to get support. But there seemed to be a large number of possibilities among such things as those which have been mentioned by Mr. Jenkins, such as this osmotic membrane idea, and so on.

Accordingly, at that time I argued along two lines. First, that the large expenditure for a so-called demonstration plant to produce water by a known process at a high cost would not be a good idea in that relatively little would be learned by demonstrating what you already knew. At the same time I argued that what was really needed was the nurturing of these nebulous ideas. The bottleneck was not money but ideas. A number of others agreed with this position. In fact, the bill as passed took the form in line with those arguments.

Since 1951 I have been in contact with the program and have been informed about its progress. In fact, I have reviewed some of the proposals as submitted to me by Mr. Jenkins. I think I know the general way in which it has worked.

In the first place, I would offer my opinion that it has been exceptionally well run. It has been efficiently well run, and followed the lines of operation which I think make very good sense, indeed. This original brochure which Mr. Jenkins and his office produced, listing all the conceivable ways that one might think about if one went about to invent a process, was a really excellent document, and a very fine idea, because it did exactly what it was intended to do—it got a lot of people excited about the problem and thinking about ways they could do better and produce a number of ideas. This showed excellent judgment to get this document out at the beginning. That was an efficient thing to do when you are after ideas.

I think the program and the selection of projects has shown a good balance between the relatively routine improvement of known methods and known devices, and the long shots which one might say were almost fantastic, but still in this kind of thing should not be overlooked. I think to go all in one direction or all in the other would have been a mistake. I think the facilities permitted looking at both kinds.

It seems to me that the program has had adequate advice from, one might say, reputable scientists. I think the people engaged in

the contracts among the advisers and among the consultants are people who command the respect of the engineers and scientists of the country. I think the program, therefore, briefly, works as intended. It brings out ideas, and I think myself that this is basically the function of the program, and would be my interpretation of the purpose of the original bill.

I believe that the 5-year period is too short to collect and pursue these ideas because they don't just come along for the asking and one leads to another. So I would think that it is entirely reasonable and proper that the time period be extended, with at least the support that it has had on an annual basis.

I think in the next 3 or 4 years it will be desirable to build 2 or 3 pilot plants, and these will be more expensive than some of the operations of the program to date. So the funds will be a little tighter than they have been if these pilot plants are built.

I might distinguish between a pilot plant and a demonstration plant. My definition of the words would be that a demonstration plant is a plant essentially constructed to make fresh water by a process that is known and in which one has confidence. A pilot plant is a plant of a somewhat smaller size ordinarily built to work out some of the problems and essentially not to make fresh water, if you please, of a type which cannot be worked out in a laboratory, and there are a number of these.

For example, one of the possible troubles with this membrane process is very tiny particles of colloidal impurities may ruin the membranes, and the only way to find out that is to operate one of these devices over a long period of months with the water in which you are interested.

Consequently, a pilot plant such as the one in existence now operating on the brackish water in the West is very definitely in order. The corrosion and sealing problems, using sea water, in connection with either this critical pressure device or in connection with the vapor compression evaporators, are problems which would be essentially impossible to get data on which one might get data in the laboratory, and have very much confidence in the ability to predict the operation of a demonstration or commercial plant over a period of years. So a pilot plant again may be in order in this connection.

These pilot plants are certainly more expensive than the kind of operation or kind of research which the chairman mentioned as going on in Florida on ultrasonics where the money simply goes to determine if an effect exists. If the effect exists, which the man is looking for, then it is worth pursuing. That is a relatively inexpensive type of study. It is not much more expensive than Dr. Fleming's discovery of penicillin, when it flew into the window. But the subsequent idea from there to the large-scale distribution of penicillin costs hundreds of millions of dollars, and the development of this idea may, too. But the first step is to determine the effect and locate the antibiotic.

Just in passing, a word about this item in the new bill on the use of Government laboratories and people. I would say only that in the situation where ideas are the bottleneck, it would seem to me ridiculous to rule out of consideration any area from which one might get a usable idea. It just makes good sense to accept the fact that these people, as well as people in Europe, might have some ideas that we would like to pursue and very likely have them pursue them in their own laboratories at the outset.

Finally, just a word about my conclusions about the present state. I think that the promising processes at the moment are the ionic membrane process, the vapor compression development of Dr. Hickman, a combination of vapor compression and multiple effect system, which is the subject of a recent study by Dr. Badger of Ann Arbor, no connection with Badger Manufacturing Co., and finally this critical pressure device.

I think these indicate that water might be made even today for about half the cost that I thought would be possible a year ago. I think the costs are somewhat higher than the cost figures that are seen in the newspapers from time to time about making fresh water from the sea, but I think very real progress has been made, and in round numbers I would say that the cost has been halved by workable processes which one might go ahead and make today.

Senator ANDERSON. Has there been any thought given as far as you know with the possibility of tying in the new reactor programs with the experimental programs along that line? We are dealing with high pressures in all sorts of experiments of that nature. Here you come along with these boiling water types of reactors and so forth.

Dean SHERWOOD. The same kind of technical information is useful in both areas. There is, of course, in this scientific fraternity an unusually good communication system whereby scientific facts get around very rapidly. I would say in connection with atomic energy only this: Just in the same way that atomic power may become interesting and economic in competition with steam power, even perhaps more probably is that low-grade energy in the form of heat might compete with fuels and therefore it would seem that the possibility of using heat energy from reactors in these fresh-water devices such as the multiple-effect evaporators is perhaps even better than the possibility of making competitive power from reactors.

Senator ANDERSON. That is exactly what I was wondering about. I think there might be something there. We are talking all the time about how nice it would be in some of these types of reactors if we did not have to take the heat and transform it into steam, and take the steam and transform it back into energy, and so forth, we would be able to do a lot of things. If that were true, you might possibly find some way of locating a reactor where sea water was a circulating element in it, and come out with some surprising results.

Dean SHERWOOD. Mr. Chairman, I am not well informed on the subject of reactors, but it is my understanding that the cost of producing low-temperature heat by a reactor would be very much less than that of producing the higher temperature heat that it is necessary to make power. I think, for example, the Brookhaven reactor has a very substantial amount of low-temperature heat going up the stack which at one time they considered recovering by the use of a waste-heat boiler. That is the kind of low-temperature energy which would be useful for making fresh water from the sea, but which would not be useful for making power. So there is, I think, a slight edge in the use of atomic energy for this kind of a purpose over atomic energy for power in competition with steam power and heat from fuels.

Senator ANDERSON. Does that conclude your statement?

Dean SHERWOOD. Yes, sir. I would be glad to attempt to answer any questions along the lines of your interest.

Senator ANDERSON. Mr. Appelbaum.

**STATEMENT OF JOSEPH APPELBAUM, VICE PRESIDENT, OIL,
CHEMICAL, AND ATOMIC WORKERS INTERNATIONAL UNION.
CIO**

Mr. APPELBAUM. Mr. Chairman, my name is Joseph Appelbaum. I am vice president of the Oil, Chemical, and Atomic Workers International Union, CIO, with headquarters located in Denver, Colo. I am testifying here in behalf of the National CIO in support of the extension of the Government's saline water program. Until recently and prior to the merger of the Oil Workers International Union, and the United Gas, Coke, and Chemical Workers Union, I was western regional director of the United Gas, Coke, and Chemical Workers Union. In that capacity I appeared before the House Committee on Agriculture in Whittier, Calif., on November 12, 1953, in support of the further extension of the Government's saline water program.

At that time, I said, and I quote:

CIO today is happy to pay tribute to the great foresight of those legislators of the West who realize the great social and economic potential that lies in the sea at a time when no one else but a handful of scientists share their vision.

Since that time we in CIO have been impressed with the developments which have occurred in this field. We know that there has been proven a practicality to this program which now justifies the most optimistic hopes of our earlier testimony. We know that an application of vigor and intelligence can bring an early solution to many of our most pressing water-shortage problems.

Yet we stand here today in a period when the pressure of water shortage is increasingly a critical problem throughout the United States. In the past there have been occasions when it was safe to say that the water-shortage problem was primarily the problem of the West. With the passage of time, the growth of population, the increasing need for water in industry, agriculture, and for the domestic use, it is now clear that water shortage is a national problem.

Therefore, gentlemen, it seems to me that the efforts of the past in solving this problem must be reexamined in the light of the new pressures, and steps must be taken to apply knowledge and technology which have been developed in this field in a more vigorous way looking toward the solution of this most pressing problem.

In the past week we have found general acceptance to a solution of one of the Nation's most pressing problems. The Salk vaccine may well end the fear of the dreaded disease "polio." Given adequate funds and the application of trained technicians we can solve some of our most serious problems. And no problem today is more serious than the growing shortage of water. Last week as I moved from St. Louis, my former home, to Denver, Colo., I experienced the effect of the snowstorm in eastern Colorado. This is one of the areas which has a critical water shortage. This storm, which delayed my trip, was greeted with jubilation in the eastern Colorado area. The more snow that fell the more water that would sink into the ground, the less the area would be affected by the scourge of the dust blow which is affecting this whole area. It is now taken for granted in the West that in the year 1955 this country will see the biggest duststorm in the creation of a new dust bowl with all its devastating effects covering 25 million acres.

Mr. Chairman, I propose that we immediately expand the Government's saline water program if for no other reason than to seek to end this menacing dust-bowl condition, and that we provide the program with funds equal to \$1 an acre of the area affected, and that we call upon the scientists and the technicians and the irrigation experts to figure out ways and means to bring an end to this condition brought about in such large part by the shortage of water.

Mr. Chairman, I said earlier we have been encouraged by the progress of this program. That is to say, we have been encouraged by the few experiments which prove that the program has developed a potential technology and an economic range of operation which can release the giant source of the ocean to meet the water needs of almost any area in the world.

The development of a power source known as the package reactor in the field of atomic energy means that we can now provide the technology of the saline-water program to the most critical areas throughout the United States and the whole world and use our developments in this field to meet the most pressing needs of the underdeveloped countries of the world in their economic developments.

Mr. Chairman, the CIO believes that this program should be given a priority equal to that of our most pressing military development programs so that we can show the world that we are prepared to effectively aid them in raising their standard of living.

Recently the secretary of our national committee on resources development drafted a memorandum on The Application of Atomic Power to the Demineralization of Sea Water for Irrigation or Domestic Use. Mr. Chairman, without reading this memorandum, I would like to place it in the record at this point.

Senator ANDERSON. That may be done.

(The memorandum referred to follows:)

MEMORANDUM RE THE APPLICATION OF ATOMIC POWER TO THE DEMINERALIZATION OF SEA WATER FOR IRRIGATION OR DOMESTIC USE

From: Leo Goodman, secretary, CIO national committee on atomic energy, power, and resources development.

Date: March 15, 1955.

There has been since 1952, an appropriation of \$400,000 a year for the saline-water conversion program by the Congress to the Department of the Interior. The goal set for this program has been the reduction of acre-foot of potable water at a cost of approximately \$125. This is based on a survey of the cost of water to 400 American cities.

For irrigation purposes the objective has been production in cost to \$40 per acre-foot.

Substantial success has been achieved through the use of an ion transfer membrane demineralizer. This has been tested for both brackish water and sea water. Brackish water in South Dakota has been demineralized at an estimated cost of \$4 per acre-foot predicated upon an estimated conversion plant installation cost of \$1,700,000, and salt content of 855 parts per million.

In Arizona where the water contains 4,635 parts per million salt, the estimate is that brackish water can be made potable with a \$10 million investment and a cost of \$20 per acre-foot.

In Texas estimates run to \$40 per acre-foot in a \$20 million plant based on salt content of 10,000 parts per million. This process uses the property of certain plastic membranes to pass only electrically positive particles (cations) and other membranes to pass only electrically negative particles (anions). When salts are dissolved in water they break up into equal quantities of cations and anions which move in opposite directions in an electrical field. The power requirements to reduce salinity to approximately 350 parts per million were experimentally determined. The energy demand per gallon treated in a given sized unit was

shown to be inversely proportionate to the production rate; that is the higher the production rate the lower the energy consumption per gallon. In producing a water product with 350 parts per million salt content to produce 10 acre-feet per hour, that is salt content of 350 parts per million from sea water which contains approximately 35,000 parts per million is shown in the following table:

Membrane area ¹ -----	1	Sea water ² -----	1,600
Do-----	3.3	Do-----	480
Do-----	10	Do-----	160

¹ In million square feet.

² Kilowatt-hours per thousand gallons.

For each of the types mentioned above of the total cost per acre-foot the power cost was:

Type	Total cost	Direct power cost
South Dakota-----	\$4.08	\$2.56
Arizona-----	19.53	10.34
Texas-----	40.07	22.60

The above estimates are based on the assumption of 0.3 cent per kilowatt-hour.

Using the above estimates the Bureau of Reclamation has concluded that portions of the southern California and Texas coastal regions where water requirements exceed present local supplies, and those which can be developed, it is physically possible to meet all the future water requirements of those areas with converted sea water. (Saline Water Conversion Program, Research and Development Report No. 3, entitled "Potential Use of Converted Sea Water for Irrigation in Parts of California and Texas," p. 2.)

The fundamental problem, therefore, is the lack of power in areas which need this program the most. Southern California and Texas do not have available the large blocks of surplus power which would be needed to make such a program feasible at this time.

It is proposed, therefore, that the Atomic Energy Commission build some of its experimental atomic power reactors in these areas of sufficient size to supply the power necessary for further development of the saline-water program.

Mr. APPELBAUM. It shows, Mr. Chairman, that the direct power costs of the electrodialysis method of demineralization of brackish or sea water constitutes more than 50 percent of the total costs. But it also shows the direct advantage which is gained from increasing the size of units involved. One million square feet of membrane area requires 1,600 kilowatt-hours per thousand gallons. Ten million square feet of membrane area reduces the power requirement to only 160 kilowatt-hours per thousand gallons. It is clear, therefore, that this program needs some immediate large-scale experimentation. It is likewise clear that we will never get the "bugs" out of the technology of this development until we try it in many places and on an increasing larger and larger scale. Our technicians and members of my own union have called our attention to the many places where this program can be immediately put to test. In some of the very area affected by the dust bowl there are oil wells producing quantities of salt water which could be demineralized and used as potable water. The Department of the Interior's Third Annual Report on Saline Water Conversion says:

The work accomplished so far indicates that attainment of the first goal of winning fresh water from sea water at a price which municipal users and some industries might pay, and the conversion of brackish water to irrigation uses, seems to be in sight although much work will be necessary before either can be brought to realization.

Mr. Chairman and members of the committee, while I endorse the intention of S. 516, I recommend on page 2, line 5, the phrase "\$6 million in all" be stricken and in place thereof the committee substitute the phrase "\$25 million a year," and in line 17, page 2, the figure "\$500,000" be stricken and in place thereof "\$5 million."

Mr. Chairman, I am sure you are more acquainted with that as an individual than I on the question of the water shortage as such, as indicated in the prepared statement, no longer affects one particular area. It affects our whole Nation. Many people are involved. The way my organization looks at it, and the way I look at it personally, the water itself is life. I think as a representative of my union and as a family man, and as a citizen of this country, that we have got to put everything we can behind the exploitation of this program to see that the water is made available for our people.

The indications have been that there have been some practical developments in it, and our contention is that this program should be enlarged, and we should enter into the field in a practical way, and through that obtain more experience on a larger scale.

Senator ANDERSON. I appreciate that statement. I assure you I had no idea what you were going to testify to when you came in here. My earlier questions about the size of this money, and my question a moment ago about taking a reactor type that depends upon various types of pressures and see if it could not be located nearer sea water, and perhaps learn something about the demineralization of sea water at the same time has been echoed in your statement. I appreciate very much your confirmation of what had been suggested to me by the things we have been going through in the atomic-energy program.

We had a hearing yesterday afternoon on military application of the atom. It is being repeated again tomorrow. We have a hearing every 2 or 3 days for the next several weeks on that. The military application of the atom is important. But I sometimes feel that the people over in the conference that is going on now in the Far East would be somewhat interested in what we are planning to do in peace, and what contribution we can make to their ultimate welfare. We can make it by programs of this nature and make it very rapidly.

I am happy your organization has made that position.

Mr. APPELBAUM. May I make one more statement without belaboring the time of the committee. I would like to say one other thing, Mr. Chairman. It is not a question of can we afford it. It is a question of can we afford not to do it. In my way of thinking, water is just as important as any other peaceful material, as far as defense is concerned. As aptly as you have put it, I think we have to show the free world what our intentions are. When we acquire the know-how through the application of this particular program in a large expanded way, I think it is our duty as people under God to show these people in the other parts of the free world what we learned and show them how to work it and supply them with the necessary water.

Senator ANDERSON. I am very happy about your testimony. As I have said, I have been greatly disturbed over the water situation, and the possibility that we could have some way of making a contribution to that problem here and elsewhere. I know how much money we plan to spend for defense. I do not regret any of it. But a very tiny fraction of 1 percent of it spent on the development of this type of program might make possible the protection of some of

the billions we are pouring into defense at the present time. I am thinking particularly of the fact that we are in this controversy steadily with California over water, which the development of a program to its final conclusion would completely eliminate. There would be no reason why Los Angeles would want to take its water out of the California River if it could get its water out of the ocean at an equivalent price, and it might be possible for it to do so. If that happens, then you free immediately a lot of water for areas that are being questioned now. I am thinking of a bill that is going to come to the floor shortly, the Arkansas-Fryingpan project, which deals with the diversion of water from the upper Colorado area. California very properly, I guess, asks what is that going to do to the character of the water we are going to get that is left in the stream. Will it carry a larger proportion of solids and therefore not be usable by us. We want to know. We are worried about it. At the same time, Colorado Springs there with a new Air Academy, and with a great many mineral operations getting ready to start, and in need for a great deal of water, that water can be supplied very quickly by the Arkansas-Fryingpan project.

I cannot help but think of my own State where we have in a very narrow stretch of country the Los Alamos Laboratory, which has had a great deal to do with weapon design for our modern arsenals, and the Sandia base which has had a great deal to do with the manufacturing techniques of our weapons, and the White Sands Proving Grounds, which developed rockets and intercontinental missiles, everyone of the areas short of water, all possible to be served by a transmountain diversion from the upper Colorado River, and the whole project being questioned by California because it represents a diversion of the stream, and I am not questioning that. All that could be eliminated very quickly by the use of water of this character.

Are there other witnesses?

If not, thank you very much. I regret that additional members of the committee were not here for this discussion. I do want to say that former Secretary of the Interior Oscar Chapman was trying to be here. He found that his doctors want him to keep quiet for a few more days. I do want to recall that he was very much interested in this program. He gave us a great deal of encouragement. He assigned Mr. Lineweaver to the project when he was Secretary, and required him to report directly there to the Secretary. I am sorry he was not able to be here.

I think I will include here the article in the New York Times of February 17, 1955, in which David Lilienthal, former head of the AEC, sees an all-out water famine, and calls for an all-out crash program to develop a feasible way to concentrate the removal of minerals from sea water and make it useful for irrigation and industrial needs and human consumption.

(The article referred to follows:)

[From New York Times, February 17, 1955]

LILIENTHAL SEES A WATER FAMINE—AEC EX-HEAD SAYS NATION OVEREMPHASIZES ATOM AS SHORTAGE GROWS

(By Jack R. Ryan, special to the New York Times)

CHICAGO, February 15.—David E. Lilienthal said today the Nation was overemphasizing the atons-for-peace program in the face of a much more urgent problem—a growing water shortage.

"However important the multi-billion-dollar search for economical electricity from atomic fission may be, it does not compare with the need for action on our threatened water supply crisis," he declared.

He called for an "all-out crash program" to develop a feasible way to concentrate and remove minerals from sea water and make it useful for irrigation, industrial needs, and human consumption.

Mr. Lillienthal was a principal speaker at the annual meeting of the American Institute of Mining, Metallurgical and Petroleum Engineers at the Conrad Hilton Hotel.

He was Chairman of the Tennessee Valley Authority from 1941 to 1946 and Chairman of the Atomic Energy Commission from 1946 to 1950. He now is Chairman of the executive committee of the Minerals and Chemical Corporation of America.

CITES POPULATION GROWTH

He said a successful sea-water process might be achieved with only a fraction of the cost in dollars and technical talent being spent on the nuclear-power-generating program. He said it would help meet one of the gravest problems a rising population and industrialization presents."

"Most authorities feel it will be 20 years before the atom can compete economically with other fuels for generating power," he continued. "By that time we expect to have 60 million more people in this country—but we can't stockpile water and there's no present indication we'll have any increased water supply then.

"It has been said that the expensive stress on atomic electrical power is justified by the cold war. Well, the cold war has covered more than one boondoggle.

"And what would be a greater cold-war weapon in arid, overpopulated India, for example—more electricity or a great increase in water for farming? Or in the arid countries of the Middle East? In many parts of the world, water is the very condition of life, and the lack of water spells hunger, discontent, and warfare."

Mr. Lillienthal also urged the "stockpiling of new technical knowledge and new processes" for making use of domestic lower grade industrial minerals. In this way, he said, the United States could rely on its own minerals or substitute materials in times of trouble.

NOTES MINERAL IMPORTS

"We are importing minerals at a great rate, and this should be encouraged" he said. "But we should not be blind to the real possibility that even though there will be no shooting war—as I happen to believe—we may find our imported sources of mineral supply constantly interfered with, uncertain and costly."

Another speaker today was Capt. Howard T. Orville, United States Navy, retired, weather consultant to the Bendix Aviation Corp. and chairman of the National Advisory Committee on Weather Control. This committee was appointed late in 1953 by President Eisenhower to evaluate public and private experiments in weather control.

"Today we may be facing one of the greatest droughts in history," Captain Orville said. "New reports of drought conditions are received daily from all over the Nation. Denver has banned city sprinkling even in winter; Baltimore has just experienced the second driest year in 50 years.

Drought conditions are currently reported in 944 counties in 18 States extending from Texas northward to Wyoming and from Georgia and Virginia westward to Nevada."

He said cloud-seeding operations to increase rainfall or snowfall had been or were now in progress in almost every State of the union "although the beneficial results are still questioned by many." Commercial "rainmaking" has stabilized into an estimated \$1 million-a-year business.

The engineers' 5-day meeting will conclude tomorrow.

The CHAIRMAN. We have a statement from Hon. James Roosevelt, Member of the House of Representatives from California, which will be included in the record.

**STATEMENT OF HON. JAMES ROOSEVELT, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF CALIFORNIA**

Mr. ROOSEVELT. Mr. Chairman and members of the committee, I am delighted at being able to express myself on a subject—water—that has been of paramount importance to the West from the time the first pioneer forged his dusty way across the country, and one that is becoming of increasing importance in the East as well. As you know, gentlemen, I have also had some experience of that area.

I speak as one who has an intense interest in the prosperity of our entire country, one whose faith in its continued growth and prosperity has often been expressed. I am not one of those who believe, like Malthus, in occasional hardship and distress, or even war, for the purpose of reducing the population to a point where it can live, no, exist, on depleted or wasted natural resources. We had one experience with that philosophy a while back, now showing up in the smaller numbers of our population between 15 and 25, one which will reverberate in future generations in the smaller number of children born to that smaller age group. This philosophy, which the Democrats sought to overturn by measures designed to increase the prosperity of the country, has now been revived by those who would waste our resources, who, when they do grudgingly take steps that would better utilize them, make sure that they are too little—I sincerely hope they are not too late.

I say this because the same measures which would benefit our own country, the same knowledge gained in this saline water conversion program would, without significant extra expense, go a long way to raising the standard of living throughout the world.

By making North Africa, at the time of Carthage one of the most fertile areas in the world, bloom again, as once it did, by making other desert areas flourish, we can bring food to starving millions and uproot the major economic unrest that led to communism. When we can do this through the knowledge gained from our own program, without extra expense beyond what a realistic program for our own needs would be, I am all for it.

Let's look at it this way. Even if we had no economic need for the program in our own country—and the dust-bowl areas, harbingers of future Saharas, cry out that we do—it would be invaluable in an attempt to bring a permanent peace to the world.

Like David E. Lilienthal—you gentlemen may remember that he administered both the atomic-energy program and a major water-development project—I also call for an "all-out crash program" to develop a feasible way to concentrate and remove minerals from sea water and brackish water to make it useful for irrigation, industrial needs, and human consumption. At this point I should like to introduce into the record his statement.

Placing the importance of this program, now represented by a trifling appropriation of \$400,000 a year for a limited time, over that of producing electricity from atomic energy, he asked:

* * * What would be a greater cold-war weapon in arid, overpopulated India, for example, more electricity or a great increase in water for farming? Or in the arid countries of the Middle East? In many parts of the world, water is the very condition of life, and the lack of water spells hunger, discontent, and warfare.

And then let's look at our own country. Westward expansion, new frontiers, more agricultural land, have made possible our present standard of living. But the coast was reached many years ago, and readily feasible plans of irrigating more land through conventional methods are dwindling. It has been estimated that if every drop of water in our western rivers were utilized for irrigation, not more than one-fifth of the potentially arable land would be reached. Even the eastern parts of the United States long thought of as an area of water surpluses, is feeling the pinch. Cities have had to ration the use of water. Good industrial sites have had to be turned down because of an insufficiency of water of suitable quality. Increasing stream pollution has made the task of supplying not only potable water, but industrial water as well, an increasing problem. Look, too, at the havoc wrought in eastern farm crops when the rains fail. That's our problem now—what will it be in 20 years? As Mr. Lilienthal said in his February 15 speech:

By that time we expect to have 60 million more people in this country, but we can't stockpile water and there's no present indication we'll have any increased water supply then.

We have the solution in our hands today, a way to make the deserts of my State bear as fruitfully as the irrigated lands of the Imperial Valley—a desert which has become the most productive agricultural area in the world—a way to make the quarrels between States over water, one of the major interstate irritants and sources of litigation for many years, as trivial as the quarrels of children over the rills left by the morning rain.

Let's take the saline water conversion program, which has shown such promise in its first hesitant steps, supported by a trivial annual appropriation, and make it stride like the infant Hercules it is. Let's have no talk, blown up as through a major outlay were involved, merely of a program extended until 1963, with an authorized total appropriation of \$6 million.

This proposal to triple the total authorization for the program sounds as though it would permit a vast increase in research. On an annual basis, however, it is an increase of a mere \$200,000. That is, it is that large if the Bureau of the Budget, which has not been overly sympathetic, permits it. Surely our country, with its vast resources can afford more than this trifling amount to make available for our farms, our cities, and our industries, the water they so badly need. Is this the crash program which will prevent India's millions from dying of starvation, will relieve population pressures throughout the world, and help defeat communism, through peace, and not through war, while still we can?

We are within reach of that goal. Field tests have been made with one process which bids to reduce the cost of purifying brackish water to a price where it can be used for irrigation and municipal water.

Right now, I venture that it is cheap enough to be used in emergency situations to prevent the total loss of crops. Other processes for making sea water available for potable and industrial uses on a large scale are being tested and improved. I urge that you gentlemen push these developments, and others which may be promising, by authorizing a program large enough to develop the potential in

the program within a short time. Ten million dollars a year would be about right, to my way of thinking.

I would furthermore amend the act of July 3, 1952, to provide for dissemination of the information obtained not only to the people of these United States, but to all countries experiencing water shortage or water salinity problems—which would probably include most nations on this globe.

Further to implement the purpose of this act, which is to benefit the people of these United States, whether the information disseminated be here or abroad, I should make one further amendment in the act. I should provide explicitly, rather than by committee directives to the Department of the Interior, as occurred in the passage of the original act, that inventions made as a result of the research under this program be made available to the people of the United States. Let us not permit the creation of a new monopoly by those who have been paid by the taxpayer to develop an economic method of desalting water thereafter to say, "We will permit only those of you whom we choose to become the beneficiaries of our largesse." In such a program as this, a free nation can again demonstrate its superiority to any system of dictatorship.

The CHAIRMAN. We also have a statement from Hon. Thomas H. Kuchel, United States Senator from California.

**STATEMENT BY SENATOR THOMAS H. KUCHEL, UNITED STATES
SENATOR FROM CALIFORNIA**

Senator KUCHEL. Mr. Chairman, this bill has my wholehearted approval. Its passage is desired by the people of my State, and I believe it is also in the Nation's interest.

The 82d Congress took a farsighted step when it authorized and appropriated for a program of research in the problems of converting saline waters for beneficial use. Many areas of the United States are reaching the end of their fresh-water resources. This can be found in California, but it is also becoming ominously apparent elsewhere, as witness the critical shortage of water in New York a few years ago. In California, the water engineers of the State estimate that underground water tables will be subjected to an overdraft of 5,500,000 acre-feet in 1955. Wells in the coastal counties of my State have been deepened to such an extent that salt-water intrusion has ruined many of them. In order to maintain the life of our cities, our industry, and our agriculture, water is moved for hundreds of miles by canal and ditch, as in the Central Valley project and the Los Angeles aqueduct and other works of the Metropolitan Water District. We have but a few remaining potential projects such as the Trinity River diversion, for which I have legislation pending, and the State's Feather River project. But for a number of years, my State has turned its attention to the possibilities of converting water from the Pacific Ocean into fresh water for our population, our industry, and perhaps even our agriculture.

The California State Division of Water Resources, and the University of California, is engaging in studies of the problem and of the possibilities of salt-water conversion. It was a matter of great encouragement to us when the Federal Government undertook in 1952 to participate in similar activities.

Those activities have had the important result already of narrowing the field of research, and scientists under contract with the Department of the Interior are now able to anticipate reaching firm conclusions within another few years. The Department has advised this committee that unless the authority of the 1952 act is extended, it will have to commence this coming December to bring the program to a conclusion. The research contracts then in force would have to be concluded during calendar year 1956 so that the Department could complete its final report under the 1952 act by July of 1957, its terminal date.

S. 516 will protect the investment the United States has made to date in this vital research work. More than that, it will be an investment in the future of our country. Fresh-water sources are not inexhaustible. They are subject to weather fluctuations. They are under the pressure of rapid population growth and increasing industrialization. In making it possible for saline-water research to continue, the Congress will be taking out an insurance policy, at a small premium against the possibility of widespread economic losses, and even disaster, in the years ahead.

Senator ANDERSON. Thank you all very much.

I have a statement for the record from former Secretary of the Interior Oscar L. Chapman on S. 516.

STATEMENT BY OSCAR L. CHAPMAN, FORMER SECRETARY OF THE INTERIOR DEPARTMENT, ON S. 516

I am pleased indeed to have this opportunity of presenting my views to this committee for which I have a high regard and a sentimental attachment because of my years in the Department of the Interior. I have been privileged to discuss with the members of this committee many subjects of national interest and it is especially meaningful to me that you have invited my comments in connection with S. 516, a bill by Senator Case to amend the act of July 3, 1952, which relates to research in the development and utilization of saline waters.

Some of you may remember that this idea for the development of new water resources through the removal of salt from brackish and saline waters was initiated during my administration as Secretary of the Interior. It was proposed by the Department at that time because of the obvious need for providing additional supplies of water for domestic and related purposes. I am pleased, of course, that this program, now that it is reaching the end of its preliminary stage, is now proposed for extension. However, I am not so happy that the extension does not also include a substantial expansion, in view of the fact that the need for water grows not only as our population grows and not only in one area but all over the country.

Only recently, the Washington papers have carried items, perhaps not drawing much attention, pointing out the fact that across the river in Virginia there is going to be rationing of water during the coming summer. I think most of us will recall that last summer there was a shortage of water in New York and, mind you, there are areas where water is ordinarily plentiful.

I think that this program is important, too, because as a nation which frequently points the way, we can, while directly benefiting ourselves, indirectly benefit large areas of the world's surface where populations could develop new production from the earth if nearby saline water could be made available for domestic and related uses.

Since the enactment of this program in 1952, as I think has been pointed out by the Department in its report on the bill, new reservoirs have had to be built; water is being transported over great distances; the water table has been lowered as the result of supplementing the water supply by new wells; the Geological Survey is concerned about the lowering of the water table. It appears to be clear to him who will look that our water resources, those upon which we normally rely, are diminishing or are being contaminated. For the future of the country and of our citizens who, happily for us, are increasing in number daily, we must find new supplies.

I think it is important to note here a point that I have tried to stress on other occasions. Although this, on its face appears to be purely a civilian matter, it is nonetheless closely and intimately entwined with the defense of our country. Water, I need hardly point out, is an imperative ingredient for food and other products and for the maintenance of both our military and civilian population. Water is also, I believe, of growing importance as a cleanser following atomic attack. Thus it would seem to me that we need to devote every energy to the experimental work now going on and it should be continued and enlarged and enhanced, in order to provide our country at the earliest possible time with a way of producing substantial, additional quantities of necessary water at a cost which will be reasonable.

I think that there has been testimony before, and probably would be again, that private industry is not yet prepared and does not feel justified in undertaking the developmental work of saline water conversion to the extent it should be carried on at present. At a later point it may be that water companies of larger or smaller size, or private, cooperative, or municipal agencies, may wish to enter this necessary field. As of now, however, it is up to the Federal Government to maintain and to accelerate the program now underway.

I think that all who have participated in this program so far are delighted by the fact that substantial progress has been made. However, it is admitted that considerable work remains to be done, even to attain the initial goals which were 38 cents per thousand gallons for municipal water and 12 cents per thousand gallons for irrigation water. Nonetheless, the goal is in sight and, in my judgment, if I may give it to the committee, it is a goal that should be reached as quickly as scientific and technological progress will permit us to reach it.

It is for these reasons that I am rather distressed that the bill now before you, although on its face covers a 10-year period and authorizes an appropriation of \$6 million, actually does not do this.

Looked at analytically, the bill before you is a proposal to extend the present act through fiscal year 1963, namely, for another 8 years and the authorization, while it speaks in terms of \$6 million, includes approximately \$1 million already expended and when the sum allowed for administrative expenditures is deducted from the total, leaves perhaps a little more than \$3 million for actual work.

We need pilot plants. We need soon, I would suggest to you, a demonstration plant, something on the order of the one established at Rifle, Colo., for the development of oil from shale, or the one at Louisiana, Mo. (now unhappily closed), to develop oil from coal.

It is my thoughtful judgment that while extending this program at least until 1963, or perhaps through fiscal 1965, the authorization should be increased to \$25 million in order that the Department of the Interior can push this program with all the energy, the imagination, and the sincerity which it deserves.

It was this committee which helped initiate the program in the first place. I think it was at that time that I proposed a \$25 million program. I renew the suggestion because it seems to me that time has demonstrated that if the program was necessary in 1952, it is even more necessary now. One needs but little vision to see that it will become increasingly important in the years that lie ahead.

Thank you for this opportunity to submit my views on this vital subject.

(Thereupon at 12 o'clock noon, the hearing was concluded.)

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RESEARCH PROGRAM ON CONVERSION OF SALINE WATER TO FRESH WATER

HEARINGS
BEFORE THE
SUBCOMMITTEE ON
IRRIGATION AND RECLAMATION
OF THE
COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
HOUSE OF REPRESENTATIVES
EIGHTY-FOURTH CONGRESS
FIRST SESSION
ON
H. R. 2104 and H. R. 2126
TO AMEND THE ACT OF JULY 3, 1952, RELATING
TO RESEARCH IN THE DEVELOPMENT AND
UTILIZATION OF SALINE WATERS

FEBRUARY 16 AND 17, 1955

Printed for the use of the Committee on Interior and Insular Affairs

Serial No. 3



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RESEARCH IN THE DEVELOPMENT AND UTILIZATION OF SALINE WATERS

WEDNESDAY, FEBRUARY 16, 1955

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND
RECLAMATION OF THE COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS,
Washington, D. C.

The subcommittee met, pursuant to recess, at 10:55 a. m., in the committee room, New House Office Building, Hon. Wayne N. Aspinall (chairman) presiding.

Mr. ASPINALL. The Subcommittee on Irrigation and Reclamation of the Committee on Interior and Insular Affairs will now be in session to consider H. R. 2126, by our chairman, Congressman Engle, of California, and H. R. 2104, by our colleague, Congressman Bow, of Ohio, former member of this committee, one who is very interested in the subject matter of the legislation.

These two bills, which are identical, would amend existing law to provide for uninterrupted continuation of the saline water conversion research program. This program has the objective of developing economically feasible processes for converting saline water to fresh water. The research program is accomplished under the direction of the Secretary of the Interior through (1) scientific research conducted by federally financed grants and contracts, (2) encouraging such development by correlating and coordinating efforts in this field, and (3) stimulating the interest of private and public organizations and individuals in the problem.

If there is no objection, I shall make the memorandum prepared by the committee staff a part of the record at this point following the bill itself. Is there any objection?

There is no objection. It is so ordered.

(H. R. 2104, H. R. 2126, and the committee staff memorandum follow:)

[H. R. 2126, 84th Cong., 1st sess.]

A BILL To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C., secs. 1951 ff.), is hereby amended as follows:

(1) By modifying subsection (a) of section 2 of said Act so as to read: "by means of research grants and contracts as set forth in subsection (d) of this section and by use of the facilities of existing Federal scientific laboratories within the monetary limits set forth in section 8 of this Act, to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation."

(2) By modifying section 8 of said Act so as to read: "There are authorized to be appropriated such sums, but not more than \$6,000,000 in all, as may be required (a) to carry out the provisions of this Act during the fiscal year 1953 to 1963, inclusive, (b) to finance for not more than two years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this Act, and (c) during the same additional period plus one more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this Act. Departmental expenses for direction of the program authorized by this Act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed \$1,500,000, and not more than \$500,000 shall be expended for research and development in Federal laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable."

[H. R. 2104, 84th Cong., 1st sess.]

A BILL To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act of July 3, 1952 (66 Stat. 328, 42 U. S. C., secs. 1951 ff.), is hereby amended as follows:

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(2) By modifying section 8 of said Act so as to read: "There are authorized to be appropriated such sums, but not more than \$6,000,000 in all, as may be required (a) to carry out the provisions of this Act during the fiscal years 1953 to 1963, inclusive, (b) to finance for not more than two years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this Act, and (c) during the same additional period plus one more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this Act. Departmental expenses for direction of the program authorized by this Act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed \$1,500,000, and not more than \$500,000 shall be expended for research and development in Federal laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable."

FEBRUARY 14, 1955.

MEMORANDUM BY COMMITTEE STAFF

Subject: H. R. 2126 and H. R. 2104.

PURPOSE

These two bills, which are identical, would amend existing law to provide for uninterrupted continuation of the saline water conversion research program. This program has the objective of developing economically feasible processes for converting saline water to fresh water. The research program is accomplished under the direction of the Secretary of the Interior through (1) scientific research conducted by federally financed grants and contracts, (2) encouraging such development by correlating and coordinating efforts in this field, and (3) stimulating the interest of private and public organizations and individuals in the problem.

EXISTING LAW

Legislation was enacted in 1952 which initiated the saline water conversion research program. The legislation is identified as Public Law 448 of the 82d Congress, the act of July 3, 1952. A copy of this act is attached.

NEED FOR AMENDING THE EXISTING LAW

Public Law 448 limits the saline water research program to 5 years and the expenditure to \$2 million. Although the program still has 2 years to run, the Solicitor of the Department has ruled that under the present act all studies and research work must be completed during this 2-year period, including the correlation and coordination of the results and reports thereon. If there is no assurance that the program will be continued, many of the studies and much of the research work now in process will have to be stopped in the near future without being completed in order to comply with the Solicitor's ruling. Not only that, but the scientists who are conducting this research will be reluctant to follow up new ideas if the whole program is expected to be suddenly ended. In addition to the need for assuring uninterrupted continuation of the program there has developed a need for using existing Federal scientific facilities to accomplish a limited amount of technical assistance. This cannot be done under existing law. Department witnesses will present a more detailed justification for extending the program.

ANALYSIS OF THE LEGISLATION

H. R. 2126 and H. R. 2104 would provide for uninterrupted continuation of the saline water conversion research program and permit the officials in charge of the program to have the advantage of a limited amount of technical assistance from existing Federal scientific facilities. Section 2 (a) of the act of July 3, 1952 would be amended to permit use of the facilities of existing Federal scientific laboratories. Section 8 of said act would be amended to raise the limit of the funds authorized to be appropriated from \$2 million to \$6 million. The \$6 million includes the amounts already expended under the program during the last 3 years. Of the \$6 million, not more than \$1,500,000 could be expended for the direction of the program and for the correlation and coordination of the studies and information, and not more than \$500,000 could be expended for research and development in Federal laboratories. Section 8 would also be amended to extend the program through fiscal year 1963 and provide for an additional year for correlating and coordinating the results of studies and research undertaken under the program.

Act of July 3, 1952—SALINE WATERS

An act to provide for research into and development of practical means for the economical production, from sea or other saline waters, of water suitable for agricultural, industrial, municipal, and other beneficial consumptive uses, and for other purposes (ch. 568, 66 Stat. 328)

POLICY OF THE CONGRESS

SECTION 1. That, in view of the acute shortage of water in the arid areas of the Nation and elsewhere and the excessive use of underground waters throughout the Nation, it is the policy of the Congress to provide for the development of practicable low-cost means of producing from sea water, or from other saline waters, water of a quality suitable for agriculture, industrial, municipal, and other beneficial consumptive uses on a scale sufficient to determine the feasibility of the development of such production and distribution on a large-scale basis, for the purpose of conserving and increasing the water resources of the Nation.

AUTHORITY OF SECRETARY

SEC. 2. In order to carry out the purposes of this Act, the Secretary of the Interior, acting through such agencies of the Department of the Interior as he may deem appropriate, is authorized—

(a) by means of research grants and contracts as set forth in subsection (d) of this section to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation;

(b) to study methods for the recovery and marketing of by-products resulting from and incident to the production of water as herein provided for the purpose of ascertaining the possibilities of offsetting the costs of water production in any area by the commercial utilization of such products;

(c) to acquire, by purchase, license, lease, or donation, secret processes, technical data, inventions, patent applications, patents, licenses, land and any interest in land (including water rights, easements, and leasehold interests), plants and facilities, and other property or rights: *Provided*, That the land or

other property acquired hereunder shall not exceed that necessary to carry on the experiments and demonstrations for the purposes herein provided;

(d) to engage, by noncompetitive contract or otherwise, chemists, physicists, engineers, and such other personnel as may be deemed necessary, and any educational institution, scientific organization, or industrial or engineering firm deemed suitable to do any part of the research or other work, and to the extent appropriate to correlate and coordinate the research and development work of such educational institutions, scientific organizations and industrial and engineering firms; and

(e) to cooperate with any other Federal, State, or municipal department, agency, or instrumentality, and with any private person, firm, educational institution, or other organization in effectuating the purpose of this Act.

COOPERATION WITH DEFENSE DEPARTMENT

SEC. 3. Research undertaken by the Secretary of the Interior under the authority contained in this Act shall be coordinated or conducted jointly with the Department of Defense to the greatest practicable extent compatible with military and security limitations, to the end that research and developments under this Act, which are primarily of a civil nature will contribute to the defense of the Nation and that research and developments in the same field which are primarily of a military nature and are conducted by the Department of Defense will be made available to advance the purposes of this Act and to strengthen the civil economy of the Nation.

DISPOSAL OF WATER AND PRODUCTS

SEC. 4. The Secretary of the Interior is authorized, for the sole purpose of this Act, to dispose of all water and other products produced as a result of his operations under this Act pursuant to regulations to be prescribed by him: *Provided*, That nothing in this Act shall be construed to alter existing law with respect to the ownership and control of water.

DISPOSITION OF MONEYS RECEIVED

SEC. 5. All moneys received for products of the plants under this Act shall be paid into the Treasury as miscellaneous receipts.

REPORTS TO PRESIDENT AND CONGRESS

SEC. 6. The Secretary of the Interior shall make reports to the President and the Congress at the beginning of each regular session of the action taken or instituted by him under the provisions of this Act. The report shall include suitable recommendations for further legislation.

RULES AND REGULATIONS

SEC. 7. The Secretary of the Interior may issue rules and regulations to effectuate the purposes of this Act.

\$2,000,000 AUTHORIZED TO BE APPROPRIATED—LIMITATIONS

SEC. 8. There are authorized to be appropriated, from any funds in the Treasury not otherwise appropriated, such sums, not to exceed \$2 million, for a five-year period, to carry out the provisions of this Act: *Provided*, That departmental expenses for the correlation and coordination of information over such five-year period shall not exceed the sum of \$500,000: *Provided further*, That such departmental expenses shall be scheduled in equal amounts for each year of such period insofar as practicable.

Legislative history: H. R. 6578, Public Law 448 in the 82d Congress. House Report 1519.

Mr. ASPINALL. Is Congressman Wilson of California in the room?
Apparently he is not.

Is Congressman Matthews in the room?
Apparently he is not.

Is Congressman Bow in the room?
Apparently he is not.

I would ask unanimous consent to have included at this place in the record statements prepared by Congressman Bow, of Ohio, and Congressman Matthews, of Florida.

Is there any objection?

Hearing none, it is so ordered.

(The statements referred to follow:)

STATEMENT OF HON. FRANK T. BOW

Mr. CHAIRMAN. I am delighted to address this committee on behalf of legislation to continue and expand the saline water conversion program. I have been very much interested in this program since its inception during my service on this committee, having taken an active part in the enactment of the basic legislation at that time. As areas once blessed with an abundance of water find themselves unable to supply the constantly increasing demands of our modern society, the problem of increasing our water supplies becomes of greater importance every day. The saline water conversion program offers one possibility for alleviation of the shortages we are now experiencing and the more acute shortages that seem to be just ahead. It is for that reason I was happy to join with your chairman in introducing H. R. 2104, the companion measure to H. R. 2126, to give new scope and impetus to the research on saline water.

In view of my interest in this problem, it has been gratifying to me that a leader in the industrial development has been the Griscom-Russell Co., of Massillon, Ohio, in my congressional district. Griscom-Russell is cooperating with the Government in the manufacture of distillation equipment and in other aspects of the program.

Griscom-Russell, or any other industrial firm, cannot venture all of the capital that is required for research and development of sea-water conversion. It has been clear to me that the Federal Government should support part of this work and should coordinate to some extent the independent research that has been in progress.

Three years ago, with the study in its infancy, we authorized a small-scale investigation to prove out new ideas. I am impressed with the progress and the program that is underway, but it is clear that much remains to be done on research needed to develop equipment to supply fresh water in large quantities at costs which can be afforded in the continental United States.

The successful results that are now being obtained under the program, as discussed quite thoroughly in the Third Annual Report of the Secretary of the Interior on Saline Water Conversion, make it essential at this time to assure continuity in this vital activity. It was expected that the law which we originally enacted would need to be extended if the results justify. I feel the time has come to give the assurance that is needed both by the Department and the private scientists and engineers that their work will be carried through to fruitful ends.

It is time now to develop small pilot plants in sizes ranging from that of this desk to perhaps as large as this room, for the few more promising processes, so that the plant cost and operation costs can be worked out as provided in the present law. Such developmental work will cost more money than laboratory research and here again it is not possible for private industry to take over at the pilot-plant stage. The supplying of water has always been looked upon as a public or semipublic activity. For this reason I feel that the small increase in Federal support at this time is more than justified.

Likewise the provision for a small amount of research in existing Government laboratories is necessary both to assure the development of new ideas in which no private laboratory is interested in working and for checking and confirming reported results.

I should like to add, Mr. Chairman, that I was pleased to learn that the activity was established in the Office of the Secretary of the Interior rather than in one of the bureaus of the Interior Department. This is a nationwide problem. The research work is being carried on by scientific organizations in New England, New York, Florida, Ohio, Minnesota, Texas, Washington and California, and the problem areas of water shortages are found in all sections.

It is appropriate, therefore, that the work be conducted by the Secretary, rather than a subordinate sectional agency, as had been suggested.

Mr. CHAIRMAN. This is a vital and potentially fruitful program, of the greatest importance to our people. I trust that the committee will approve H. R. 2104 and 2126.

STATEMENT OF CONGRESSMAN D. R. (BILLY) MATTHEWS

Please let me express my appreciation to this committee for giving me the opportunity to express myself on behalf of H. R. 2126.

In my opinion our saline water conversion program is of tremendous importance and I favor any reasonable and constructive attempt which is being made in this field. As we all know, one of our great problems in America today is that of the vanishing water supplies of many of our cities and towns. We have been warned repeatedly by experts who have studied our water supply that we should take steps now to prevent tragic shortages of our indispensable water in the future. Naturally our vast oceans with their inexhaustible supply of salt water could be a source of meeting all our needs if we could find some practical method of converting this saline water for ordinary use. I sincerely believe that H. R. 2126 is an earnest attempt to move us farther along toward a solution of this problem, and I am happy to associate myself with the sponsors and supporters of this measure.

As the members of this committee may know, my home State of Florida has a particular interest in this problem of saline water conversion, due to the fact that we are surrounded on three sides by salt water. The Eighth Congressional District of Florida which I represent touches on both the Atlantic Ocean and the Gulf of Mexico. Another direct way in which Florida is interested is through the University of Florida at Gainesville. The University of Florida was granted a contract for research on the saline water conversion program in 1953 by the Department of the Interior. Several of the outstanding authorities on water supplies and water chemistry are professors at the University of Florida. I would also like to mention that because of the rapidly expanding population in Florida, heavy drafts are being made on municipal water supplies in several areas. This means that quite possibly these areas will be facing critical water supply problems in the near future.

In closing, I want to urge the most thorough and sympathetic consideration of H. R. 2126 by this honorable committee and to express the hope that the Federal Government will explore all proper avenues of research in this field. Thank you very much.

D. R. (BILLY) MATTHEWS,
Member of Congress.

Mr. HOSMER. Mr. Chairman?

Mr. ASPINALL. I also would ask unanimous consent that any other member of the House of Representatives who wishes to file a statement may have the privilege of filing it following the statements which have just been ordered printed in the record. Is there any objection?

Hearing none, it is so ordered.

Now the Chair recognizes the gentleman from California.

Mr. HOSMER. I just wanted to ask unanimous consent to the same request you have just made.

Mr. ASPINALL. There is no report from the Department as yet. If the report is received within a reasonable length of time, it will be made a part of the record at the time when it is received, and we shall await its receipt before final action on this bill.

We have present, representing Assistant Secretary of the Interior, Mr. Aandahl, Mr. Edward Frye, who is assistant to Mr. Aandahl.

Mr. Frye, do you have a statement you wish to make?

Mr. FRYE. Just about 5 minutes, sir. I have no prepared statement.

Mr. ASPINALL. We will be glad to hear from you, and then before you introduce your associate, Mr. Jenkins, the Chair would like to hear from one of the witnesses who is unable to be here tomorrow. You may proceed.

**STATEMENT OF EDWARD FRYE, SPECIAL ASSISTANT TO ASSISTANT
SECRETARY OF THE INTERIOR AANDAHL**

Mr. FRYE. Mr. Chairman, we came up here this morning prepared to say that we did not have a clearance from the Budget Bureau on this proposed legislation. However, since we have been here we have a telephone clearance.

Mr. ASPINALL. We are glad to hear that.

Mr. FRYE. And we did not have time to have the letter prepared and sent up.

There is one reservation, however, in the Budget Bureau's telephone message which came to the legislative counsel, and that is that they agreed with everything that was in the bill with the exception of the amount of money to be authorized, that of \$6 million. They said they would have us a letter, and we will have it up before the committee in a short time.

Mr. Chairman, with your permission, I would like to insert in the record a copy of a solicitor's opinion of November 23, 1954.

Mr. ASPINALL. Hand it to the professional staff member.

(The document was handed to Mr. McFarland.)

Mr. FRYE. We requested this opinion in order to give us some idea of how long this legislation could go, or could we do any work after the original 5-year limitation had been expired.

The Solicitor's opinion, in brief, says contracts should not be entered into pursuant to the act of July 3, 1952, which calls for the performance by a contractor or requires work by departmental employees beyond the termination of the 5-year period that appropriations are authorized to be made for carrying out the purposes of the act. The 5-year period during which appropriations are available for carrying out the purposes of the act was initiated on July 15, 1952, by the appropriation of \$125,000 by the Supplemental Appropriation Act of 1953.

This means that on July 15, 1957, all activity under the program must cease. That includes research being performed that should be performed by our contractors and those under grants and also any activities within the Department. That, together with the progress that we feel is being made in the program, is the reason that the Department is endorsing the legislation and urging its approval.

We do believe that progress is being made, but we are not so optimistic as to believe that the best solution may be found by the time of the cutoff date. For that reason we do urge the committee to give approval to the program.

Mr. ASPINALL. I would like to advise the committee that the correspondence from the Solicitor's Office is substantially in conformity with the statement made.

Is there any objection to having it made a part of the record at this point in the hearing?

Hearing none, it is so ordered.

(The document referred to follows:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SOLICITOR,
Washington, D. C., November 23, 1954.

MEMORANDUM

To: Director, Saline Water Conversion Program.
From: Acting Solicitor.
Subject: Limitation on funds—Saline Water Act.

Your memorandum of October 22 requests my opinion as to the legality of contracting for the performance of services pursuant to the act of July 3, 1952 (42 U. S. C. sec. 1951 et seq.), when such services would extend beyond the 5-year period prescribed in section 8 of the act.

You have advised that—

"* * * The contract research for which these funds [appropriation made pursuant to the act] are used each year is for work performed over a period usually extending beyond the end of the fiscal year in which the contract is executed. The term of such contracts averages about 1 year but in some cases may be 2 or 3 years. Thus funds appropriated during the final and fourth year of the program would ordinarily be used for research some of which would be performed subsequent to July 3, 1957."

Section 8 of the act of July 3, 1952 (42 U. S. C. sec. 1958), reads as follows: "There are authorized to be appropriated, from any funds in the Treasury not otherwise appropriated, such sums, not to exceed \$2,000,000, for a five-year period, to carry out the provisions of this Act: *Provided*, That departmental expenses for the correlation and coordination of information over such five-year period shall not exceed the sum of \$500,000: *Provided further*, That such departmental expenses shall be scheduled in equal amounts for each year of such period insofar as practicable."

Although this section speaks in terms of authorizing appropriations, its purpose clearly is to limit the amount that may be appropriated and the period of time during which such appropriations may be made and expended. The phrase "for a 5-year" period relates not only to that period of time for which sums appropriated may be expended for services under research contracts and grants, but also to that period of time for which payments may be made for work performed by departmental employees on such activities. It is my view that contracts should not be entered into pursuant to the act which would extend beyond the 5-year period. Furthermore, it appears that such contracts should call for the termination of work and the submission of reports thereunder a sufficient time in advance of the expiration of the 5-year period for the Department to perform the correlation and coordination work within such 5-year period.

Because of the view expressed above, we should also answer the question "When does the 5-year period begin?" so that its termination may be known. I believe that such period must be construed as beginning with the date that appropriations were first made pursuant to the Saline Water Act and not from July 3, 1952, the date on which that act was approved. The limitation of the 5-year period is directly related to and contained in the appropriation section of the Saline Water Act as distinguished from its functional provisions. The first appropriation for the purpose of carrying out the provisions of the Saline Water Act, in the amount of \$125,000, was made by the Supplemental Appropriation Act, 1953, approved July 15, 1952 (66 Stat. 637, 642). It is my view that the approval date of that appropriation act, July 15, 1952, must be considered as the date on which the "5-year period" was initiated.

J. REUEL ARMSTRONG,
Acting Solicitor.

MR. ASPINALL. Does that complete your statement, Mr. Frye?

MR. FRYE. Yes, sir.

MR. ASPINALL. Mr. Frye, do you wish to present Mr. Jenkins or do you wish the chairman to present him?

MR. FRYE. If you had any questions you wish to ask me—

MR. ASPINALL. You will be asked questions at the same time Mr. Jenkins is after he has presented his statement.

Mr. FRYE. Mr. Jenkins is the director of the saline water conversion program, which is in the immediate office of Assistant Secretary Aandahl.

Mr. ASPINALL. Mr. Jenkins, we are very glad to have you with us.

STATEMENT OF DAVID S. JENKINS, DIRECTOR, SALINE WATER CONVERSION PROGRAM, DEPARTMENT OF THE INTERIOR

Mr. JENKINS. Thank you, Mr. Chairman, and members of the committee.

Mr. Chairman, I had planned to proceed at somewhat greater lengths than I will be able to do so now. I have 4 or 5 matters which I thought I would like to bring to the attention of the committee, and then tomorrow we have 4 of our research contractors, who are working on some of the most promising processes, who will each present a 10- to 15-minute discussion of the processes that each is working on.

With your permission, we should like to submit for the record a rather detailed statement, copies of which have been supplied to the members of the committee.

Mr. ASPINALL. And you wish to talk extemporaneously?

Mr. JENKINS. Yes. And then I would like to summarize that.

Mr. ASPINALL. Is there any objection?

If not, the statement will be made a part of the record and you may proceed.

(The statement referred to follows:)

STATEMENT OF DAVID S. JENKINS, DIRECTOR, SALINE WATER CONVERSION PROGRAM

Mr. Chairman and members of the committee, we are appearing today and tomorrow to provide factual information on the saline water conversion program for use in consideration of the proposed amendment H. R. 2126 to the act of July 3, 1952, Public Law 448, 82d Congress, 2d session.

The need for additional fresh water in the United States and throughout the world and the need for rectification of the ever-increasing salinity of many of our inland streams and underground waters was thoroughly established by this committee and other committees of the Congress prior to enactment of Public Law 448. Therefore, unless the committee especially wishes otherwise I have not planned at this time to repeat discussions of those needs, which are even greater today than they were in 1952. Instead my remarks are directed primarily to the activities under the present program.

I. ORGANIZATION OF PROGRAM AND METHODS OF OPERATION

It was originally suggested that the activity might be handled within the Bureau of Reclamation. A small group of technical personnel within the Bureau of Reclamation was assigned to initiate the work. Because the activity was directly related to several of the bureaus in the Department, each of which was in a position to make some technical contribution, after a few months the activity was transferred from the Bureau of Reclamation to the Office of the Secretary by order of former Secretary Chapman on December 16, 1952. Then in the spring of 1953 the present administration conducted an exhaustive analysis of the activity and confirmed that it could operate best in the Office of the Secretary rather than in one of the bureaus and on October 8, 1953, Secretary McKay assigned the responsibility for the program to the Assistant Secretary for Water and Power Development. It now operates as a part of his office.

Referring to the chart appended to this statement: A group of nine eminent leaders of educational, scientific and industrial organizations provide the Secretary with advice on broad policy matters relating to the new activity. The advisers

provide this service without cost to the Government, except for occasional travel expenses. I am pleased to report that all of the nine original advisers are continuing to serve in this capacity. They are—

Dr. Robert G. Sproul, president, University of California, Berkeley
 Dr. Lee A. DuBridge, president, California Institute of Technology
 Dr. George D. Humphrey, president, University of Wyoming
 Dr. Louis Koenig, associate director, Southwest Research Institute
 Mr. Henry J. Schmitt, editor and publisher, Aberdeen (S. Dak.) American-News

Mr. J. J. Cronin, vice president, General Motors Corp.

Dr. Frederick L. Hovde, president, Purdue University

Mr. Sheppard T. Powell, consulting engineer of Baltimore, Md.

Dr. James R. Killian, Jr., president, Massachusetts Institute of Technology

A 2-day meeting of the advisers was held in April 1954. Their recommendations made at that time appear in the appendix to this statement.

A Saline Water Conversion Committee (departmental); consisting of one representative each from the Office of the Assistant Secretary for Water and Power Development, the Bureau of Reclamation, the Bureau of Mines, and the Geological Survey; provides advice and assistance in such matters as development and review of the program, exchange of information, and preparation of the annual reports.

The research is continuously coordinated with private organizations and other Government agencies, including the Department of Defense in accordance with section 3 of Public Law 448, and the National Science Foundation with which a cooperative agreement exists. A copy of the agreement is appended to this statement. Other governmental organizations with which cooperation has been established include the Atomic Energy Commission, the Smithsonian Institution, Federal Civil Defense Agency, the Department of Agriculture, Department of State, the Foreign Operations Administration, and Department of Commerce.

The responsibility for the management of the program including both the coordination activities and the direction of the widely diversified contract research is that of the program director and his staff.

Panels of consultants provide highly specialized scientific assistance in such ways as evaluating proposed research and final results, making technical analysis of existing processes and numerous others.

At present all of the actual research and development is performed by the contractors.

This organization has proved adequate except for some difficulty in obtaining qualified scientific assistance in this highly specialized work, as is necessary to supervise the contract research, assure continuing interest and a flow of new ideas which are still very much needed, and handle the technical and administrative actions in connection with dispersed research of this kind.

II. PROGRESS

At the beginning of the program, the cost of converting sea water to fresh water by the best existing processes—the distillation process with relatively small units—was estimated at about \$5 a thousand gallons, or some \$1,500 an acre-foot, and it was estimated that if much larger plants of this type were built, also using existing principles, the cost would be \$1.25–\$1.50 a thousand gallons (\$400 to \$500 an acre-foot). Two arbitrary cost criteria were set for the initial phase of the program, one for water for municipal and similar purposes at about \$100 to \$125 an acre-foot, and one for irrigation water at about \$40 per acre-foot. They were believed, on the basis of data then available, to represent about the maximum that could be borne by these types of use in continental United States. This is maximum—not average. It was felt that if these goals could be approached or reached, further intensive research and development would be justified to reduce costs. Although considerable work remains to be done before those initial goals are fully realized, they are being approached and it is believed will be materially lowered if the research and particularly the development work is continued.

Because this disparity between the existing costs and the objectives was very large, and because improvements in the few existing processes had almost ceased to occur, it was necessary in the beginning to consider every possible solution to the problem, however remote the chances of success might seem originally. The first step was the preparation of as nearly complete outline of possible processes as could be conceived, as shown in the brochure entitled "Demineralization of Saline Waters," pages 5, 6, and 7. It will be seen that most of the conceivable physical (p. 5), chemical, and electrical processes (p. 6) and energy sources needed

therefor (p. 7) are listed. Those pages and the introductory matter thereto on pages 1-4 of the brochure are included in the appendix to this statement.

This brochure was sent to several hundred scientific organizations and individuals believed qualified and interested in considering the subject, with the request that proposals for scientific research in accordance with the outline, or on any other processes not included there but relating directly to saline water conversion be submitted. It was recognized that eventually some processes would be eliminated as unfeasible, some would be developed through various stages, and in some no interest might exist, yet they should be explored. This has been the result today—several processes are being advanced rapidly, several have been eliminated as unfeasible, and with others in which no voluntary interest has been expressed it will be necessary to carry out some research on a purchase basis in order to exhaust the list.

Results so far confirm this approach, and indicate clearly that no single process will provide fresh water for all purposes at all locations and under all circumstances. Thus it is desirable that several different principles, processes, and combination of processes be investigated and developed concurrently. Furthermore, it would certainly not be desirable to place all reliance on one or two processes to the exclusion of others when none has so far reached the final low cost necessary.

Good results are being obtained and it now appears that in time conversion of both brackish and sea water will be feasible. Twenty-four research and development contracts have been let, several have been completed, and 7 or 8 very promising results have been obtained. One process is being field tested and two others show sufficient promise to justify field tests in a year or earlier. A list of the 24 contracts which have been let, and of some prospective future contracts is attached to this statement.

Some of the more outstanding processes being developed under the program will be discussed later in this hearing by the representatives of the contractors in charge of the several activities. At this time a few of the results can be summarized.

Electric membrane processes

At the time the program began, work had already been underway first in Europe and later the United States on methods of using synthetic resin membranes with electric current to purify industrial fluids, such as sugar solutions. Later, this process was investigated in Holland and England for desalting water, and in 1950 two American groups began limited research work on membrane processes for this purpose.

Some members of this committee will recall that reports concerning the economies of one such membrane process appeared in the press shortly before this program was authorized. As a result of laboratory tests on the small 1952 unit which had been developed previously by Ionics, Inc., the cost of desalting a certain slightly brackish South Dakota water for irrigation uses was estimated to be about \$16 an acre-foot.

After the program was started, the equipment was improved and enlarged, and a subsequent contract for laboratory testing a larger unit resulted in a much lower cost for purifying the same South Dakota water—about \$4 an acre-foot. Under that same contract a more saline water from Arizona was tested on the improved equipment. This water was about 4 times as saline as the South Dakota water. Based on the tests it was estimated that the cost of purifying that water would be about \$20 an acre-foot.

These promising results obtained in the laboratory on brackish waters warranted the field testing of this one firm's equipment. This is being done under contract in Arizona and South Dakota. Overall costs of producing water are progressively being reduced. However, much improvement of membranes and cell design is necessary. Because of the complexity of membrane research, and the limited number of scientists actually experienced in this field either in this country or abroad, it would be almost impossible to have too much work going on in this field. Research on membranes is being carried on at Brooklyn Polytechnic Institute under the program, and independently by Rohm & Haas Co. of Philadelphia, Permutit Co. of New York and Gulf Research & Development. Those firms, especially the first have been very generous in sharing information on their work with the program.

Vapor compression distillation

At the time of the initiation of the program the consensus of those familiar with vapor compression distillation development, particularly that which occurred during World War II, was that major reductions in the cost of producing water

by this process were no longer possible. They believed that any future improvements could only be of a minor nature. After the program got underway it was discovered that this view was not universally held and that numerous scientists and engineers believed that new approaches to the basic distillation processes might result in substantial cost reduction. This proved definitely to be the case, and it was found that during the past 10 years essentially no major improvements had been made in this—the best existing process.

Accordingly, a number of research and development contracts have been undertaken under the program for research on various aspects of the vapor compression distillation process. The contractors include the Badger Manufacturing Co., Yale University, Heinz Engineering Co., and the W. L. Badger Consulting firm.

The possibilities of obtaining fresh water from sea water at a price which might be afforded by municipal or industrial users have been greatly enhanced by the development of the Hickman still. Although yet in its infancy, this process, being investigated by contract with the Badger Manufacturing Co., of Cambridge, Mass., may make possible production of fresh water from sea water for about one-fourth the cost of distilling sea water by the most economical process in use at present. Field tests at some seashore location are being planned. Dr. Hickman will discuss this process in some detail later in this hearing.

Research under the direction of Prof. Barnett F. Dodge and Harding Bliss at Yale University also seeks to bring down the cost of vapor compression distillation by increasing heat transfer rates in the evaporation units. The approach has been the use of forced circulation coupled with dropwise condensation of the water vapor. Encouraging results have been reported.

The Heinz Engineering Co. has attacked the problem of finding the proper balance of design factors so that particular vapor compression distillation systems can be arranged to operate at maximum economy. The work includes development of design and cost data on vapor compression distillation plants with compressors driven by steam turbines exhausting into the vapor compression cycle.

Dr. W. L. Badger of Ann Arbor, Mich., is investigating the use of vapor compression distillation in combination with multiple-effect evaporation. Preliminary estimates by the contractor indicate that by this method large-scale demineralization costs can be reduced appreciably below present-day costs by conventional means using either process separately.

Solar distillation

The role which power or energy plays in the entire conversion situation is of extreme importance. For processes using an external energy supply the cost of the energy alone for converting sea water will be, at the minimum, in the order of \$20 per acre-foot (at 5-mill power). Dr. Murphy will discuss this minimum energy requirement briefly later in these hearings. Because of this need for energy it becomes important that nonconventional low-cost energy such as solar energy, wind-power, geothermal energy, etc., be explored vigorously and exhaustively in connection with process development and use. The use of solar energy to extract fresh water from sea water is also attractive from the viewpoint of conservation of fuels. To become more attractive economically, lower cost equipment of greater efficiency is needed. Research is being carried out in an effort to discover ways and means of bringing about those improvements. Such research includes basic designs by Dr. Maria Telkes of New York University and Dr. G. O. G. Löf, Denver, Colo., use of plastics to reduce costs by Bjorksten Laboratories of Madison, Wis.

Critical pressure devices

Separation of fresh water from sea water at pressures of 4,000 to 5,000 pounds per square inch pressures at temperatures in a 700° to 800° F. range appears attractive energywise in a large scale. This principle of separating salt water was suggested earlier by the Swedish inventor Baltzar von Platen who also is given credit for having invented the Electrolux refrigerator. Von Platen and his associates stopped work because of problems now believed to be solvable, namely, corrosion and scale formations. Research is underway at Nuclear Development Associates, White Plains, N. Y., to determine the technical feasibility of the method. Two of the problems to be solved are these of corrosion and scale formations at these high temperatures and pressures.

Osmotic processes

A different way to use membranes to desalt water is by use of hydraulic pressure. Although theoretically possible, it was not until research workers at the University

of Florida, under a program contract, discovered the right type of membranes that technical feasibility could be demonstrated. The work, so far, has been on a very small scale, in the laboratory and much remains to be done to develop a practical process. However, the results so far are encouraging.

Another approach to use of these principles is being investigated at the University of California at Los Angeles.

Still another method in this field which may prove to be very important is that proposed by Dr. Murphy, State University of New York. He is developing an osmotically power permselective membrane device using the energy of the sun instead of electrical energy.

Solvent extraction

There are possibilities for using solvents to take fresh water out of salt solution and leave the salt in the brine. Exploratory research at the Texas A. and M. Research Foundation has shown that solvents of that type do exist and that their properties make possible a technically feasible process for obtaining desalted water. Additional research is being planned to determine whether economic feasibility appears possible.

Separation by freezing

Ice frozen from saline water contains much less salt than the original water. Although basically promising an economical method of separation by freezing has never been developed, because of numerous practical difficulties. Research at the Applied Science Laboratories, State College, Pa., and at the University of Washington at Seattle is now being carried out under the program in an effort to overcome these difficulties.

III. NEED FOR EXTENSION AT THIS TIME

The question may reasonably arise now as to whether an extension of the authorization period is desirable at this time, rather than at the close of the present 5-year period. One answer is this:

Under the provisions of the present act, all of the actual research under the contracts, all reports thereon, and all correlation and coordination of data must be completed by July 15, 1957.

Most research and development contracts are for a period of about a year. Thus it would be necessary to terminate most contracting by about December 1955, 10 months hence, to permit completion of the work under the contract by December 1956, and final reporting of the results and conclusions of the program 6 months later. Thus scarcely any of the appropriations for fiscal year 1957 could be utilized for contract research just at the time when the need for advanced research and development of promising processes is expected to be felt most. Moreover, research of this type is perforce, long range in character. Unless assurance can be given to the private firms and research organizations and particularly to individual private scientists whose ideas are needed that promising studies will be carried to completion, we anticipate difficulty in securing interests of scientists, and in achieving worthwhile results even in fiscal years 1956 and 1957.

Interruption or abandonment of the program after fiscal year 1957 would dissipate a large part of the valuable results already achieved or anticipated, with a consequent loss to the Government.

Furthermore, after 2½ years of work, it is now possible to foresee with greater assurance the chances of success of the entire program.

IV. NEED FOR SOME RESEARCH BY EXISTING GOVERNMENT LABORATORIES

The authorization in the proposed legislation to permit an expenditure up to \$500,000 for research to be conducted in existing Government laboratories would prove advantageous in a number of ways. Several individual private scientists in private life have had ideas on processes worthy of at least exploratory research effort. However, they do not have laboratory facilities available. Some would be agreeable to having the research carried out at a Government laboratory, but in the absence of specific authority that has not been done. Thus the research has not been carried out. Then there is the situation where Government scientists themselves have worthwhile research to propose, which they and their laboratory are best qualified to perform. Another area in which operations in a Government laboratory are valuable is in making unbiased comparisons of processes and in confirmation of research results. In some cases, Federal scientific organizations offer the only satisfactory personnel and facilities to conduct certain investigations.

V. NEED FOR INCREASED AMOUNT OF AUTHORITY AND THE 25 PERCENT ADMINISTRATIVE EXPENSES

As provided in the proposed amendment additional funds would carry forward the development of processes. It is usually necessary and desirable that the initial research on development of a process be conducted on a relatively small scale laboratory basis. For such research only nominal expenditures have been required. Although much of this exploratory research needs to be continued, it was not considered to be the purpose of the program to limit the activities to basic, exploratory, or laboratory research. To accomplish the purposes of the act in developing processes on a scale sufficient to determine the feasibility of the development "on a large-scale basis," pilot plants or field tests become necessary as individual processes which show sufficient promise are developed in the laboratory. Such tests are essential in order to obtain reliable cost estimates and information on the durability of the unit and critical parts, down time, production capacity, power requirements, etc. Developmental work, including field tests of this type, is much more costly than laboratory investigations. However, nearly all such work is handled on a cost-plus-fixed-fee basis. Therefore, if it is adequately inspected and audited no unnecessary expenses are involved. I cannot emphasize too strongly the need for adequate inspection by qualified Government scientists, of all Government contract research work.

The proposed authorization for appropriation of a total of \$1,500,000 for departmental expenses is only a small increase on a per year basis of the amount authorized under the present act. From this fund would come not only departmental expenses for the 1953-63 period, but also for the additional 2-year period for completion of research projects and for the final 1-year period for correlating, coordinating, and rounding out the results. It is expected that the small increased rate (from \$100,000 a year to approximately \$115,000) will cover the increased activity and the resultant increase in coordination and in supervision functions. Particularly as each process reaches the larger field testing stage is constant inspection needed. It has already been clearly shown in the one field test under way that personnel of high caliber, capable of discerning successes, failures, and pitfalls and able to recommend changes in direction, must be on hand in addition to the skilled personnel of the contractor.

GENERAL

Every effort is being made to encourage private development of processes and as a result a few industrial firms have undertaken independent research in this field during the past year, and wholehearted cooperation has been received from several organizations now engaged in these activities. It is entirely possible also that some industrial firms may be working on processes without advising the Department of their activities.

In addition the work is being coordinated with that abroad, as it is believed to be essential that every scientific improvement or facility to solve this pressing national problem be brought to bear, wherever such assistance may be. Program scientists and consultants are obtaining technical assistance from abroad both by correspondence and by personal visits. The latter have proven to be extremely productive. It is planned to continue such exchange of technical assistance and cooperation wherever it is clearly of advantage to the United States program to do so.

Mr. JENKINS. Since this is the first meeting we have had with the committee since the program was started in 1952, it was thought that the committee might like to know quite briefly about the organization in the Department that is handling the work.

If I could refer to the chart that is attached to the material that has been supplied to the committee members, the responsibility for the program is that of the Assistant Secretary for Water and Power Development. Then the group of nine advisers to the Secretary from educational, scientific and industrial organizations provide advice on the broad policy matters. We do not ask them for much advice on the details of processes. They, like Mr. Powell, are men of considerable eminence. Five are university presidents.

At this point I would like to attempt to answer 1 question that was asked a moment ago about the view of the other 9 advisers.

Shortly before this legislation was introduced, letters were sent to the nine advisers asking them for their views. We have now received 7 replies from the 9. All are very heartily in favor the extension of the legislation. They do not have copies of this bill. They are merely commenting on the principle of extending a research program which has just begun.

With your permission, I should like to insert those seven responses in the record.

Mr. ASPINALL. Do you have them with you?

Mr. JENKINS. Yes, sir.

Mr. ASPINALL. Present them to the professional staff member.

(The documents were handed to Mr. McFarland.)

Mr. ASPINALL. As I understand it, Mr. Jenkins, these advisers of whom you have been talking are not paid and do not even get a per diem allowance. Is that correct?

Mr. JENKINS. That is correct, sir. We pay their travel expenses to a meeting if we ask them to attend one.

Then, referring still to the chart, a saline water conversion committee within the Department consists of one representative each from the office of the Assistant Secretary for Water and Power and from the Bureau of Reclamation, the Bureau of Mines, and the Geological Survey.

Then you will see that the research is coordinated—I believe this question was asked earlier—is coordinated with numerous other agencies of the Government as well as with private industry. Very active coordination is maintained with the Atomic Energy Commission and these other departments, all of whom have some interest in this program.

Of course, the responsibility for the management is that of the Director and his staff. Panels of consultants provide technical assistance. They are really the staff of this organization, the technical staff on whom we call occasionally.

Then at present all of the research is handled by means of contracts and grants.

Now the second subject I wanted to discuss is the progress to date, and I judge that the committee is most interested in that subject.

At the beginning of the program the cost of converting sea water by the best existing processes was about \$1.25 to \$1.50 a thousand gallons, or about \$400 to \$500 an acre-foot. The cost of the water at the plant in California that was mentioned earlier has been computed at about \$650 an acre-foot.

For this reason, 2 arbitrary cost goals were set for the initial phase of the program, 1 for municipal and industrial water at about \$125 an acre-foot, and for irrigation water at about \$40 an acre-foot. These were maximum costs, not average, of course. It was felt that if they could be approached further research would be justified. If they could not be approached in this earlier period, then we would know at the end of the 5 years.

Although much remains to be done, the first of these goals is being approached at present.

The CHAIRMAN. You are referring to the cost of industrial water?

Mr. JENKINS. The cost of converting water, yes. The first of the goals, the industrial water at \$125.

The CHAIRMAN. You are approaching \$125 on industrial water?

Mr. JENKINS. Mr. Engle, we are approaching \$125 on converting water, whether it would be used for industrial purposes or irrigation or any other purpose.

The CHAIRMAN. And that is from a start of \$1,500 an acre-foot?

Mr. JENKINS. A start of \$400 to \$500 an acre-foot. The small stills that were in operation at the beginning of the program would produce water at about \$1,500 an acre-foot, and it was rather carefully computed that if such processes were developed in a large-scale basis the water would cost \$400 to \$500 an acre-foot. On that same basis, as well as we are able to extend the laboratory results now, we believe that if large plants were built the cost might be as low as \$125 an acre-foot.

Mr. RHODES. Mr. Chairman?

Mr. ASPINALL. Mr. Rhodes.

Mr. RHODES. What process are you using to get the \$125 cost?

Mr. JENKINS. Two distillation processes, if the laboratory research solves certain problems that now are rather great.

Mr. RHODES. What about the membrane-ion process? Does that appear to have promise?

Mr. JENKINS. These figures that I have given refer to distillation in general, and the membrane-ionic process is one which is most adaptable to the brackish waters.

I had hoped earlier to have time to go into a little of the history and discuss the needs for improving many of our inland brackish and saline waters as well as ocean water. The program is devoted to both purposes, and much of the research contributes to both purposes.

The ionic process that is under field test in Arizona at present is most suitable for treatment of the slightly saline waters. Some estimates have been made of the cost of demineralizing sea water by that process, and it would be very high.

Mr. RHODES. Do you have any interim report you might make as to the success of this field test in Arizona?

Mr. JENKINS. Mr. Rhodes, that test is just getting started. The first tests were begun about the 10th of January. That was what we call a shakedown test. Naturally a number of problems arose. We expected them. And the second test of about 6 weeks is getting under way now. We do not have the results. We have learned a few things, one that is very important—that each water that is used in that process presents a different problem. We are finding some major scaling problems with the Arizona water due to a very small amount of iron in the water.

This emphasizes the contention that the firm has always made that a different set of computation and research will be necessary for almost each different water until we get some of the problems solved. It must be recalled this is a very new subject and a very new process.

Mr. RHODES. Are you having difficulties in disposing of waste materials? I understand that is a problem also.

Mr. JENKINS. Mr. Rhodes, that will be a problem in any inland area, and for that reason the quantity of the waste drain is a very important factor. In other words, if 90 percent of the water can be

rectified and 10 percent can be wasted, we will have not only a smaller disposal problem but we will have more water to use.

In this particular case, I may say that while we had thought that would be about the ratio that would result from this process, it is showing instead about 60 percent product and 40 percent waste. That is another matter we have to work out. It is just one of those things you do not get in the laboratory.

Mr. ASPINALL. You may proceed, Mr. Jenkins.

Mr. JENKINS. Then, in addition to the electrical membrane process, which will be discussed tomorrow at more length by Dr. George W. Murphy of New York State University, who has made a very extensive study of membrane processes in general, both in Europe and in the United States, we have a rather attractive process in a critical pressure distillation system which was originally proposed by the Swedish scientist Von Platen. That process is being developed under the program and the initial results show that if three rather major problems can be solved, we may be able to produce water there by that process at somewhat less than \$100 an acre-foot. We are still a long way from a pilot plant on that.

Dr. Laserson, one of the principal scientists engaged in that contract research, is here today and he will be able to discuss that process at greater length tomorrow.

Then another: Preliminary results from one vapor compression distillation investigation indicates a very good possibility of producing fresh water from sea water for approximately one-fourth of the cost of water by any process in use when the program was started. This is an ingenious process. It was mentioned earlier as having a rotating mechanism. It was invented and developed by a scientist of considerable accomplishment, Dr. Kenneth C. D. Hickman, who will appear before the committee tomorrow and discuss that development.

Then I wanted to say that another very potential field is that which was mentioned this morning in solar distillation. The program so far has shown, among many other things, Mr. Chairman, that electric power or other energy is a very important factor in any conversion process. Not only must we have the electrical energy and pay for it, but if the conversion job is a large one it means finding a large block of electrical energy some place. That cannot be overlooked.

For that reason, much importance is being attached in the program to processes using solar distillation or other nonconventional energy sources. Several small experiments are underway in this field in Colorado, Wisconsin, California, New York, and in several areas abroad. Dr. Maria Telkes from nearby New York University will summarize that work on behalf of the other contractors who are at a greater distance tomorrow.

Then there are other promising processes that are being developed: One at Texas A. and M. Research Foundation; freezing processes at State College, Pennsylvania, and at the University of Washington, Seattle; and an osmotic process at the University of Florida and the University of California at Los Angeles.

That concludes my remarks regarding process development and progress. I have three other short subjects.

Mr. ASPINALL. How long will it take, Mr. Jenkins, on the other ones? Will it take you over 5 minutes on each one of them?

Mr. Jenkins. Five minutes altogether, perhaps.

Mr. ASPINALL. Then you may proceed. We will try to get your general presentation, and then tomorrow morning we shall have you before the committee, you and Mr. Frye, for immediate questioning as we start our proceedings in the morning.

Mr. JENKINS. The third subject that I wanted to mention was the need for the extension of the authorization at this time rather than later at the end of the 5-year period.

Mr. Frye has mentioned the solicitor's opinion which has been placed in the record. Most of the research contracts are for about a year. Under the present act all of the research would have to be finished by July 15, 1957, and, therefore, it will be necessary under the present act to stop all contracting, or most contracting, by about December 1955, some 10 months hence, in order to permit the completion of the contract work in the year and final reporting 6 months later in July 1957. This would be just at the time when the developments are showing the greatest promise and requiring intensive research and development.

Also, and possibly more serious, the flow of new ideas will definitely diminish if the program is being terminated, and the greatest need is for new ideas. We do not believe, and I think I would be amiss if I conveyed to the committee the impression, that the 3 or 4 processes on which we are working can now be isolated and all work can be concentrated on them. That would be placing all of our eggs in 2 or 3 baskets.

The next subject I had is the need for the increased amount of the authorization.

Most exploratory research has been, and will continue to be, necessary. Such research requires only small expenditures. However, to accomplish the purposes of the act in developing processes on a large-scale basis as required in the act, field tests, properly referred to as pilot plants, are necessary. These are pilot plants. They are not demonstration plants. They are merely pilot plants, but they cost more than laboratory research. Each one will cost, we estimate, from \$100,000 to \$300,000 or \$400,000, and there may be 8 or 10 necessary during the program.

Mr. Powell mentioned that later than demonstration plants, by someone—we hope it will be private industry—may be in order.

I thought I should mention the 25 percent limitation on the administrative expenses as provided in the amendment. That is the same percentage as in the present act. The proposed authorization for \$1,500,000 for that purpose is only a small increase on a per year basis of the amount authorized at present.

The small increase from \$100,000 to about \$115,000 a year would provide for the increased research activity and the resultant increase in coordination and in supervision functions.

Particularly as each process reaches the larger field testing stage is constant inspection necessary. It has already been clearly shown that in the one field test under way personnel of a high caliber, capable of discerning success, failures, and pitfalls, and able to recommend changes in direction, must be on hand in addition to the skilled personnel of the contractor. This is no different than building a dam, in which we must have our inspectors on the job.

The last subject which I had is the need for some research in existing Government laboratories.

The authorization in the proposed amendment to permit an expenditure of \$500,000 for research in existing Government laboratories should prove advantageous in a number of ways. Several individual scientists in private life have ideas on processes worthy of at least exploratory effort. However, they do not have laboratory facilities available, and so far efforts to get them located in universities have been unsuccessful. Some of these people would be agreeable to having the research carried out in a Government laboratory, but in the absence of specific authority that has not been done and the research has not been carried out.

Then there is a situation where Government scientists themselves have worthwhile research ideas to propose, which they and their laboratory are best qualified to perform.

Still another area in which operations in the Government laboratory are valuable is that in making unbiased comparisons of processes and confirmation of the reported research results.

That concludes my statement.

Mr. ASPINALL. Thank you very much, Mr. Jenkins.

Mr. Jenkins has asked that certain statements be placed in the record, the statements of Dr. Powell, Dr. DuBridge, Dr. Koenig, Dr. Schmitt, and Dr. Sproul. The Chair will advise his colleagues he has examined these statements and they are generally in accord with the statement made by Mr. Jenkins in reference to them, and they support the bill. Also the statement of Dr. Hovde.

Is there any objection?

Hearing none, it is so ordered.

(The documents referred to follow:)

PURDUE UNIVERSITY,
Lafayette, Ind., February 15, 1955.

HON. FRED G. AANDAHL,
Assistant Secretary of the Interior,
Washington, D. C.

My dear Mr. SECRETARY: I have discussed the saline water research program of the Department of the Interior with various members of the Purdue University staff. I join them in the opinion that this program has been a most worthwhile one and that it would be highly desirable to continue the research beyond the present expiration date of the act supporting this program. The gradual diminution of our basic water resources poses a serious future threat to all aspects of our economy. It is self-evident that a vigorous research program concerned with the recovery or production of potable water from both sea water sources and available brackish water sources is one of the most promising methods of insuring adequate future water supply.

There are several current research projects of your saline water conversion program which show promise of bringing at least a partial solution to the problem. In addition, the mere existence of this program serves to call to the attention of the scientists of the country the need for further research in the solution of this most pressing need of the country. The great need for this program is the generation of new ideas. The greatest probability of generating these new ideas is through an active research program. Certainly conservation of water resources through research is an appropriate area for support by the Federal Government.

I should be most pleased, therefore, to go on record as favoring the extension of the present act for a period of 5 years with an additional year to evaluate the results of the research program.

Yours sincerely,

FREDERICK L. HOVDE,
President.

FEBRUARY 12, 1955.

FRED G. AANDAHL,
Assistant Secretary of the Interior,
Washington, D. C.

The saline water conversion program is examining all lines of approach to this important problem. Though there are attractive possibilities it is clear that an extensive program of research is still required before practical methods of water rectification can be achieved. I would strongly urge a continuation of the authority for the program with continued careful evaluation of its progress and of proposals for future expenditures.

S/ L. A. DuBRIDGE,
President, California Institute of Technology.

SOUTHWEST RESEARCH INSTITUTE,
Sar Antonio 6, Tex., January 6, 1955.

Mr. FRED G. AANDAHL,
United States Department of the Interior,
Washington, D. C.

DEAR SECRETARY AANDAHL: I have your letter requesting comments on the proposed extension of the Saline Water Conversion Program Act for an additional 5 years.

In the chemical industry it is generally accepted that the average time from conception to marketing of a new product is approximately 7 years. For the more complicated or advanced products or processes the development time is, of course, even longer. The saline water program is developing a major new chemical process in an extremely difficult field and it is only to be expected that more than 5 years will be required.

In July 1953 in one of my speeches on saline water conversion, I estimated that it would take 5 years to develop processes economically useful on brackish waters and to determine whether or not sea water reclamation would be feasible—also that if proven feasible it would then take another 10 years before sea water conversion plants were in successful operation.

In another speech first given in July 1954, I indicated that progress had been better than previously anticipated but that it would still be 3 to 4 years, i. e. 1957–58 before feasibility were shown. Transcripts of both of these talks with the pertinent passages marked in red are enclosed.

Although the progress in the last 6 months has been satisfactory there is nothing to indicate that this time schedule can be appreciably shortened. This means that by the end of the present act, we will probably know whether sea water reclamation will ever be feasible. It will then take us at least the additional 5 years requested in order to fully develop a feasible process.

I do not believe that the legislature can question the amount of research expenditures under the act. Actually out of every \$14,000 spent annually for research and development in the Nation—only \$1 goes for the research effort of the saline water program. Or to put it another way, out of every \$9,000 spent by Government agencies for research and development only \$1 is spent on the saline water conversion research effort. This despite the judgment of many that, after defense, water is the No. 1 problem in the Nation's welfare.

Cordially yours,

LOUIS KOENIG, *Associate Director.*

JANUARY 10, 1955.

Mr. FRED G. AANDAHL,
Assistant Secretary of the Interior,
Washington, D. C.

MY DEAR MR. AANDAHL: It is with interest and satisfaction that I note that it is the intention of the Department of the Interior to recommend to the Congress the extension of the Saline Water Act of 1952 for a period of 5 years.

To suspend this work late next year would, in my opinion, be a serious setback to the solution of this problem which is vitally necessary to the future welfare of the Nation. Each year water shortages in parts of our country, as well as elsewhere in the world, increase in gravity. In many cases converted saline water appears to be the only remedy for these conditions.

For many years desalting of water in arid or semiarid regions has been discussed pro and con. Usually, comments or proposals have lacked in practicable application and often have been oblivious to the vital matter of cost of production.

In my judgment, the Department of the Interior has approached the problem in a realistic manner and has developed methods of attack which will in time prove successful. Few who have seriously thought on this problem will minimize the difficulties which must be overcome or the time which will be required to find a satisfactory answer, but it is equally true that few will doubt that the time will come when water from this source must be widely used in our country.

I am sure that many will join with me in the hope that this program will be placed on a permanent and continuing basis.

Sincerely yours,

SHEPPARD T. POWELL,
Consulting Engineer.

THE UNIVERSITY OF CALIFORNIA,
January 31, 1955.

Re saline water conversion program

Mr. FRED G. AANDAHL

*Assistant Secretary of the Interior,
Department of the Interior, Washington, D. C.*

DEAR MR. AANDAHL: In reply to your letter of January 4 concerning a 5-year extension of the Saline Water Act, and following a conference with Prof. Everett D. Howe, it would seem to me that the progress of work to date and the prospect of getting significant research fully underway would warrant the proposed extension.

It was a source of satisfaction to learn that you also believe that results obtained thus far are sufficiently encouraging to indicate that economical conversion will be developed, provided research and development activities are given a reasonable time in which to cope with this significant problem. While some may be deluded into believing that research is simply a process of waving a magic wand, or its results can be assured merely by the size of appropriations or the urgency of deadlines, I am happy that there are those who realize that it is a human process warranting not only the economical marshalling of the best brains of the Nation, but also requiring careful programing, precise knowledge of developments, and many tedious man-hours of the most exacting type of human endeavor—spurred by faith in the promise of results and not by any guaranty, man-given or otherwise.

I commend you and your colleagues for the recently completed mission to inspect research and development in water conversion throughout Europe and northwest Africa, and I am happy that our Professor Howe was privileged to participate as a member.

Yours sincerely,

ROBERT G. SPROUL.

ABERDEEN AMERICAN-NEWS,
Aberdeen, S. Dak., January 7, 1955.

Mr. FRED G. AANDAHL,

*Assistant Secretary of the Interior
Department of the Interior, Washington, D. C.*

DEAR MR. SECRETARY: I have your January 4 letter and am in complete accord with the decision to recommend that the Congress be requested to extend the present Saline Water Act of 1952 for a period of 5 years.

It is my personal observation that more and more people have become aware of the water shortage looming in various sections of the United States and it seems to me that this problem now has become a paramount one which must be resolved.

With kindest regards,

Yours very truly,

HENRY J. SCHMITT, *Editor and Publisher.*

THE UNIVERSITY OF WYOMING,
Laramie, Wyo., January 7, 1955.

Mr. FRED G. AANDAHL,
*Assistant Secretary of the Interior,
Department of the Interior, Washington, D. C.*

DEAR MR. AANDAHL: I agree with your proposal that it would be a good idea to extend for another 5 years the Saline Water Act of 1952 which expires July 15, 1957. I am of the opinion that considerable progress has been made and if the project is not extended much of the effort which has been expended would be lost.

Please call upon me if I may be of any service to you in securing passage of legislation extending the original Saline Water Act.

Sincerely yours,

G. D. HUMPHREY, *President.*

Mr. ASPINALL. We will hear from Mr. Sheppard T. Powell, Consulting Engineer, Baltimore, Md. Proceed, Mr. Powell.

**STATEMENT OF SHEPPARD T. POWELL, CONSULTING ENGINEER,
BALTIMORE, MD.**

Mr. POWELL. Mr. Chairman, I appreciate the compliment and the privilege that you have extended to me. Thank you.

I have a prepared statement.

Shortly after Congress authorized the saline water conversion program, I was requested by Secretary of the Interior Oscar L. Chapman to serve as 1 of a group of 9 advisers to assist the Secretary in carrying out the provisions of Public Law 448, with regard to the human, economic, and industrial phases of the project. Subsequently, the writer and the other members of the advisory group have continued to serve Secretary McKay in this capacity. In this way, we have been kept informed of the general progress of the program.

When the program was initiated, many were skeptical of the merits and justification of such scientific studies. However, this attitude has been greatly altered and the program now has the cooperation and support of recognized men of science and many agricultural and industrial groups throughout the country, in addition to similar organizations outside of the United States.

It is the speaker's opinion that the organization, development and direction of the program have been, in general, satisfactory, with the possible exception that desirable close contacts with prospective research contractors have been limited because of the small size of the technical staff administering the program. With a few additional scientific employees, it would be possible to exchange and stimulate ideas more fruitfully, and to follow more closely the research projects to be carried on in the future. This is important because of the widely diversified nature of the research assignments and because many of the leading authorities in the various phases of the research are located considerable distances from one another and from Washington.

It is a fact that research and development of new processes are frequently tedious and subject to alteration from time to time. After reviewing the results of the saline water program to date, the speaker is of the opinion that the progress has been exceptionally good and has resulted in the assembly of many fundamental data necessary for evaluation of various processes for demineralization of saline water.

The foundation is being laid for realistic development of practical conversion processes. Several schemes have shown enough potential merit to justify the next step in the program. Provision should be made soon for construction of pilot plants of appropriate size to be operated under actual conditions to check laboratory findings. Data acquired will lead ultimately to full-scale installations, preferably by private industry.

I have discussed this program with many people throughout the United States and find that there is very keen interest and much hope that, through continued research and development, practical conversion processes can be developed. There is particular need for conversion of saline waters in many areas where fresh water supplies are inadequate for present or future requirements.

Many phases of the saline water program must be considered. Accurate appraisal of the relationship between saline water conversion and water requirements must be preceded by the acquisition of intimate knowledge of the quantity and quality of water needed for various uses. For industries, not only overall requirements must be determined, but also those of the component process steps in which variations in quality are permissible. The existing costs of water used for various purposes within each type of industry should be investigated so that the tolerable costs of converted saline waters can be estimated. The economics of water use must always be in the forefront when considering converted saline water as a substitute for or supplement to fresh water supplies.

Any long-term program for saline water conversion must include provisions for locating and evaluating existing sources of both fresh and saline waters. Information needed on these waters must include their geographic location, quantity, and quality, and their potential adaptability for varied requirements, with or without some form of water conditioning.

In many cases, it will not be necessary to completely demineralize the saline water. Desalting for any use should aim at the minimum quality which will meet the specific need. For some industrial uses, untreated saline water may be satisfactory, provided equipment is constructed of corrosion resistant materials. For others, partial demineralization may be used to advantage, or complete conversion of part of the supply followed by blending with untreated water to obtain the various water qualities necessary for different uses. In many cases, irrigating water can also be blended in this manner. Where raw water salinities vary, desalting methods may be necessary part of the time; during the remainder, conventional methods of water treatment may suffice.

Economic demineralization of saline waters would result in many tangible and intangible benefits. Because of industry's and agriculture's interests it now seems timely that cooperative efforts by Government, industrial management, and agricultural organizations should be fostered, especially for pilot plant water conversion installations. Such effort will depend upon congressional authorization for continuation of the saline water conversion program.

The research and development now in progress is being watched with much interest by those engaged in similar projects in a number of foreign countries. Cooperation between this Government and those abroad having mutual interests in this problem should be fostered

and expanded. This may be best accomplished by a specific program of exchange of data and personal inspection of installations in this country and in foreign fields. The Division of Social and Economic Affairs of the United Nations is urging that such mutual cooperation be established and developed.

It is desirable that the responsibility in the Federal Government for coordination of the technical aspects of saline water developments rest with one Federal agency, as is done with mining or irrigation. I was glad to learn that quite a number of requests for information on this subject have been received from persons in friendly nations abroad, and that considerable technical data on research in Europe is being obtained by personal contact with scientists there. I know from my own experience that foreign scientists are often abreast or ahead of us here, and I feel that the officials in charge of the program should do more than they have to assure that every useful idea, wherever it arises, be applied to this pressing problem.

To carry out effectively, and to put into practical use, pilot plant, semicommercial plant or full-scale operation will require funds much in excess of those originally authorized in Public Law 448. In view of the great needs for additional water supplies, and the tremendous benefits that will result from successful desalting processes, the financial support for this work has been meager, both here and abroad.

It is the opinion of the speaker that the entire problem of developing and using saline water supplies in this country, as well as elsewhere in the world, should be made a part of national water policy. There are many other facets of water resource development, but to ignore the value of saline water sources and their potential beneficial uses in the solution of the overall water requirements of this Nation would be unwise.

If the program is ended in 1957, the knowledge gained by that time will lose much of its potential value, because the ultimate purpose has been to translate research knowledge into practical application. I, therefore, urge that the necessary legislation be enacted to continue the saline water conversion program for not less than 10 years and that adequate funds be appropriated to accomplish the desired results.

The bill 2126 seems adequate for the present. However, it may be found that individual plants larger than the usual pilot size will be needed to work out plant costs and problems, before private enterprise is willing to take over. If so, such authorizations might be made individually as each process justifies.

Thank you.

Mr. ASPINALL. Thank you, Mr. Powell for a very clear statement.

I understand that your position is that the work cannot be finished within the limitations of 2 additional years. Is that correct?

Mr. POWELL. That is correct.

Mr. ASPINALL. And that perhaps it will take at least 10 additional years; is that correct?

Mr. POWELL. I think so.

Mr. ASPINALL. During that 10 additional year period, it may be advisable to construct and operate pilot plants?

Mr. POWELL. Yes, sir.

Mr. ASPINALL. In order to prove formulas brought out by the laboratories?

Mr. POWELL. That is correct.

Mr. ASPINALL. And when we reach that state, if possible, you would like to see private industry and the Government cooperating on it?

Mr. POWELL. I think that would be the best plan that could be followed as an overall governmental policy.

Mr. ASPINALL. Whenever private industry is willing to take over the program with the answers arrived at by that time, then the Government should get out of the program?

Mr. POWELL. I think so, with the exception that I think the Government should continue for all time, as they have, for instance, in collecting data in the United States Geological Survey. I have a strong feeling that the saline water program in the United States should not be ignored, since we need it as part of our overall water program.

Mr. ASPINALL. Let me ask you this: Has not the United States or some agency of Government been collecting data throughout the years even before this authorization was contemplated?

Mr. POWELL. Yes, they have; but there is still need. There are many blind spots that there is much need now for collecting more data.

Mr. ASPINALL. The Chair recognizes the gentleman from New York for questions.

Mr. O'BRIEN. No questions.

Mr. ASPINALL. The Chair recognizes the gentleman from Utah.

Mr. DAWSON. No questions.

Mr. ASPINALL. The gentleman from Texas.

Mr. ROGERS. Mr. Chairman, I have one question.

Mr. POWELL, is there any definite tie-in or possible tie-in later on, do you anticipate, between this program and the Atomic Energy program?

Mr. POWELL. I think there is a very definite possibility of it. If I may, I would like to explain what I mean.

At the present time, energy from atomic energy sources, nuclear sources, is not competitive with other fuels. I believe, however, that the time will come, and is fast approaching, not only here but abroad, where fuel is in short supply. Nuclear power or generation from nuclear power is such that there is a great deal of heat generated, and I believe that that properly worked out will be a source of fuel for obtaining fresh water from salt-water sources.

Mr. ROGERS. Mr. Powell, carrying that on further, there are tremendous requirements for water insofar as the nuclear power development is concerned. That is true, is it not?

Now would there be a definite connection from that standpoint, in other words, the use of water in developing that program further?

Mr. POWELL. I believe that in this country it is not now necessary to go to nuclear energy to convert saline water. I do believe, however, that where this nuclear power is generated and where there is short supply of fresh water that, by properly designing a plant, they can use salt water for many of the sources, and when this is done they would then have the energy to convert such of the salt water as they might need over into fresh water, and by having this energy available it would be byproduct energy. I think there is a great possibility in the future.

I have talked to some of the people in the United Nations about this, and there are certain nations abroad that are not only short of fresh water but they are short of fuel, too. I think there is the greatest possibility of developing a combination or multipurpose projects by the use of this nuclear power and desalting of water.

Mr. ROGERS. Thank you.

Mr. ASPINALL. The Chair recognizes the gentleman from California, Mr. Hosmer.

Mr. HOSMER. Are the other eight members of the advisory board in substantial accord with the opinions you have expressed?

Mr. POWELL. I do not know. I have never discussed with them. I know some of them are. Maybe they all are not.

We know at the present time they have gone on record that nuclear power does not at the moment fit into this country.

Mr. HOSMER. I mean with respect to the statement you made to the committee, the prepared statement.

Mr. POWELL. I think in general that is true. I think they are, as far as I know.

Mr. HOSMER. I just wanted to say on my own behalf—and I am sure the committee feels the same way—that you gentleman have performed a real public service, and we are grateful to you for the time and trouble you have taken to be here today.

Mr. POWELL. Thank you.

Mr. ASPINALL. The Chair recognizes the gentleman from Montana.

Mr. METCALF. No questions.

Mr. ASPINALL. The gentleman from Arizona.

Mr. RHODES. Are you ready at this time to discuss any specific processes for demineralization of saline water?

Mr. POWELL. I would like to make this one general statement on processes, because that question has arisen often—what is the best process to use?

Before you can answer that question or before anyone can intelligently answer that question, they must qualify it by, Where is the water? And where is it located geographically?

For instance, if you are out on the desert and you have plenty of solar energy, which of course you do have from the sunlight, then the processes utilizing solar energy are probably the most practical ones to use. However, there are other sections of the country where you do not have that kind of condition and where you have low-grade fuel and where you can use byproduct and eventually use it as a multipurpose project. Then I think you have got to be guided on the selection of the process which is most satisfactory, depending upon those factors.

Mr. RHODES. I was thinking more in terms of the actual process used in removing the mineral from the water rather than the sources of power. As I understand it, there are various devices which are in various stages of perfection to get the job done. Are you in any position to comment on which appears to be the most promising?

Mr. POWELL. I presume you are referring now to the new development which has come in by membranes and ion exchange?

Mr. RHODES. Yes.

Mr. POWELL. That is in relatively early stage of development. It has enormous potential values as time goes on. That also has some power involved, but a minor amount.

Have I answered your question?

Mr. DAWSON. Will the gentleman yield?

Mr. RHODES. I will yield.

Mr. DAWSON. I would like to inquire of the gentleman from Arizona if the process being used in Arizona is the solar process.

Mr. RHODES. No, it is not at the present time. At least to the best of my knowledge it is not.

Mr. DAWSON. It seems to me with the sunshine you have down there that would be the ideal place to develop the solar process.

Mr. RHODES. I thank the gentleman for his fine comment on the climate of my State.

Mr. ASPINALL. The Chair recognizes the gentleman from California, Mr. Sisk.

Mr. SISK. Mr. Powell, you mentioned here at the end of your statement that you feel H. R. 2126 seems adequate for the present. Does that infer that you feel that the provision, I believe, of \$6 million over the period of 10 years is adequate for such research as may be needed?

Mr. POWELL. Yes, I think it is for the moment. It is as far as you can tell at this time. The laboratory research is not all completed yet. What the present laboratory research has done is to point up all of these processes. They have made a broad survey of all of them. So that I feel from now on they will concentrate on the ones that have the greatest potential merit. That amount of money I think would permit also some pilot-plant installations, the next step.

In any research, you cannot go directly from laboratories into full-sized plants. I think we all recognize that. Those who have tried it have found out the error of their way because they wasted money. So the next step is to put in pilot plants, not only to work out the details of the processes that are being tried out, but also to get design data and cost data and that is the next step. From then on they will have to go to large-scale installations, in which case I think we will need the assistance of industry. I think for the present this amount is apparently satisfactory.

Mr. SISK. You do not feel that the program carried on, say, for the next 10 years should be any less. You feel, as you foresee possible research now, it would require that much?

Mr. POWELL. Ten years?

Mr. SISK. It could be done for less, say, than what is proposed in the bill?

Mr. POWELL. May I make this general statement? In carrying out any research program you get the benefit of what you spend. So that if it is curtailed, I do not think it will be a loss. But to carry it out with speed, which I think is necessary, and to get it in practical operation, I think you are talking of a research period and a development period of 10 years.

Mr. SISK. The reason I ask that is with reference to something you may have heard with reference to what the Budget Bureau's recommendation might be for the amount of money. Could you tell me this, Mr. Powell? In round figures, what has been spent on this particular research program in the past years? Do you have any idea in round figures about how much money has been spent?

Mr. POWELL. I think there were \$400,000 to be expended. I think it has been up to about that level. But Mr. Jenkins is here and can answer that much more accurately than I can.

Mr. SISK. That is all, Mr. Chairman.

Mr. ASPINALL. My colleague from Colorado, Mr. Chenoweth. Do you have any questions?

Mr. CHENOWETH. Just one question, Mr. Powell. How far are we away from the time when there can be some commercial value to this program?

Mr. POWELL. As a matter of fact, these desalting processes are now carried on commercially. It is not a question, can you do it; it is a question of how much it costs.

Mr. CHENOWETH. Tell us something of the commercial situation now.

Mr. POWELL. There was a plant just put in at the Pacific Gas & Electric Co., north of San Francisco Bay, in which a large evaporating installation was put in to make fresh water for their boilers.

In the Far East—and we have done some work in the Far East in my private practice—there are large installations of evaporators.

On the membranes which you spoke of a minute ago, Mr. Rhodes, those have not been developed into any large-scale plants yet.

Mr. CHENOWETH. Is the cost still so high the process is not practicable for commercial use?

Mr. POWELL. For that particular one. Evaporation of water is high anyway. That is the reason I feel very firmly that we are making an error in evaluating what it costs to get saline water. In most of these processes they develop distilled water. You do not develop distilled water for all these processes. So if you could take saline water of, say, 4,000 parts per million and dilute it down with fresh water, then you are getting twice as much water for the same price and the cost goes in half.

I think one of the errors made by the public generally when they are talking of figures is they have not evaluated saline water for its particular uses. The cost should be evaluated on the needs of the quality of the water for a particular process, and when you take that into account, then the cost, although it is high on the surface—you may be able, and quite conceivably so, to produce water, and usable water, at a much lower cost than the process on the surface shows the cost.

Am I making myself clear?

Mr. CHENOWETH. Yes. Thank you very much.

Mr. ASPINALL. The Chair recognizes the gentleman from Michigan.

Mr. DIGGS. No questions.

Mr. ASPINALL. The gentleman from California, Mr. Utt.

Mr. UTT. I just wanted to ask you, is this the only department of Government carrying on research and development or are there other departments of Government that are carrying on research and development?

Mr. POWELL. I am not quite sure. I think there are certain types of water frequently being studied by different departments. The Atomic Energy Commission is doing a great deal of work. Whether they are doing anything on demineralization and use of saline waters I do not know, but there is a great deal of research work going on in different departments.

Mr. UTT. You do not know whether the Defense Department has a full program on it?

Mr. POWELL. I know the Defense Department is doing a great deal of work along these lines, but whether or not they are doing anything on saline water directly, I do not know. I think they have it in the program, but I am not familiar with it.

Mr. UTT. Is the membrane process the one with the revolving disks?

Mr. POWELL. No.

Mr. UTT. What is the name of that?

Mr. POWELL. That is the Badger process.

Mr. UTT. Do you know whether the Department of Defense is developing that?

Mr. POWELL. I do not know. Mr. Jenkins can probably tell you.

Mr. ASPINALL. The Chair recognizes our chairman, Mr. Engle.

The CHAIRMAN. Mr. Powell, how close are we to getting this desalting process in shape where it will be useful for industrial water?

Mr. POWELL. It is now being used for industrial water. It again comes back to cost. There are many, many plants, industries, in the United States today that are desalting water by evaporation. One I just mentioned is the Pacific Gas & Electric. They are taking sea water and getting fresh water directly from sea water from these large evaporators. There are many installations of this kind. That is expensive water.

The hope in the development of this particular program is to select processes that can be developed industrially and bring the cost down, and especially in many places where they do not have cheap fuel.

The CHAIRMAN. I can see how it would be a long time before we could hope to get water by any of these processes that would be economically useful to irrigation, that is, in the normal sense throughout the West. Our water out there will run anywhere from \$3.50 an acre-foot, as it is on the Friant-Kern Canal, to, say, \$25 an acre-foot, as it is over on a project we have in Santa Barbara County.

I understand that water in Los Angeles may run in the order of \$40 an acre-foot.

Mr. POWELL. That is right.

The CHAIRMAN. If we could get sea water down to \$50 or \$60 an acre-foot, we would be getting into the range where it might be, you could say, competitive with bringing in of water from other sources.

How close are we to that?

Mr. POWELL. It is my personal opinion—and this is not a committee opinion, it is an opinion which I am giving based on experience—I think the time is approaching. I would not like to be held to a timetable, but I think the time is approaching and we will actually be getting fresh water from sea water, but to do so I think it will have to be a multipurpose project.

The CHAIRMAN. By “multipurpose” what do you mean?

Mr. POWELL. I am thinking largely of using waste fuels. We have an enormous amount of heat in industry which is going to waste, and that could be turned into useful purposes for desalting water. It is something that I think is coming. This program, I hope, will take that into account before it goes too far.

The CHAIRMAN. Are we in the position yet to set up a demonstration plant for the purpose of testing the economics of any of these processes on a large scale?

Mr. POWELL. You are very close to it on some of them; yes.

The CHAIRMAN. I would like to establish a plant down in Los Angeles and test a process down there. Is there some process that you can think of that could be set up down there for a demonstration plant?

Mr. POWELL. I think that there are some that have great possibilities; whether you want to use one or another, I do not know. But what I have in mind now is an evaporator. I have talked to other people in California in the large utility field and they have exactly the same thought you have—that they would like to see one put in there and demonstrated in a plant to work out the economics of specific processes.

The CHAIRMAN. How much would that cost? Could we do it for 5 or 6 million dollars?

Mr. POWELL. That depends on the size of the plant again. I think you would not go to full size plant first, you would go to pilot plant. I can conceive you could put in a pilot plant on some of these processes and spend maybe a quarter of a million dollars and get design data from which you could then proceed to build a large plant.

The CHAIRMAN. Is this bill sufficiently broad to permit the establishment of that kind of pilot plant?

Mr. POWELL. I think so.

The CHAIRMAN. And could some of the money in this bill be used for that purpose?

Mr. POWELL. I think it could.

The CHAIRMAN. Well, I am stronger for this bill than I thought I was.

Mr. ASPINALL. The Chair recognizes the gentlewoman from Idaho.

Mrs. PFOST. I would like to ask Mr. Powell if study has been given to the use of atomic energy in desalting saline water.

Mr. POWELL. Yes. There has been a good deal of liaison between this committee and the Atomic Energy Commission. They are very closely in cooperation with them and have discussed this.

Mrs. PFOST. May that not be the solution to your cheap fuel?

Mr. POWELL. Whether it will in this country or not, I do not know. I am definite it will be in some of the arid regions of the world.

The CHAIRMAN. One more question. Do you think it would be inappropriate for us to put a special direction in this bill that a portion of this money be used for the establishment of a pilot plant?

Mr. POWELL. If it is not in there specifically—I thought it was, but if it is not named specifically, I think it is the intent.

Mr. ASPINALL. Are there any further questions?

If not, the Chair wishes to compliment the gentleman on his fine statement.

Mr. POWELL. Thank you, sir.

Mr. ASPINALL. We are very pleased to have had you with us.

Mr. POWELL. Thank you.

Mr. ASPINALL. This will conclude our meeting this morning. We shall meet again at 10 o'clock tomorrow morning for further consideration of this bill.

(Whereupon, at 11:55 a. m., the subcommittee recessed to reconvene at 10 a. m., Thursday, February 17, 1955.)

RESEARCH IN THE DEVELOPMENT AND UTILIZATION OF SALINE WATERS

THURSDAY, FEBRUARY 17, 1955

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D. C.

The subcommittee met, pursuant to recess, at 11 a. m., in the committee room, New House Office Building, Hon. Wayne N. Aspinall (chairman) presiding.

Mr. ASPINALL. The Subcommittee on Irrigation and Reclamation of the Committee on Interior and Insular Affairs will now be in order for further consideration of H. R. 2104 and H. R. 2126, identical bills.

The Chair has in his hands a favorable report from the Department of the Interior under date of February 16, 1955, and unless there is objection, it shall be placed in the record of the hearings at the beginning of today's session.

Hearing no objection, it is so ordered.

(The report referred to follows:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., February 16, 1955.

Hon. CLAIR ENGLE,
*Chairman, Committee on Interior and Insular Affairs,
House of Representatives, Washington, D. C.*

MY DEAR MR. ENGLE: You have requested a report on H. R. 2126 a bill "To amend the act of July 3, 1952, relating to research in the development and utilization of saline waters."

The act of July 3, 1952 (66 Stat. 328, 42 U. S. C., 1952 ed., sees. 1951 ff.) authorized the appropriation of a total of \$2 million to enable this Department to carry on, through contracts with private scientists and engineers, educational institutions, scientific organizations, and engineering firms, a 5-year research program looking to "the development of practicable low-cost means of producing from sea water, or from other saline waters, water of a quality suitable for agricultural, industrial, municipal, and other beneficial consumptive uses * * *."

Enactment of H. R. 2126 would modify the basic act by extending the period under which operations can be conducted under it, by increasing the amount authorized to be appropriated for the conduct of these operations, and by permitting research to be carried on to a limited extent in existing Government laboratories.

It is the recommendation of this Department that H. R. 2126 be enacted.

Continued expansion of our industries, our growing populations, and expanding agricultural production have increased tremendously the demand for large quantities of fresh water. This continued growth and expansion has placed a severe drain on our water resources in certain areas. In many instances, new reservoirs have had to be constructed and water transported over great distances, in other cases the water supply has been supplemented by new wells which have lowered the water table. The pumping of ground water for irrigation in many areas has been at rates considerably above the safe yields as estimated by the United States Geological Survey. The sources of water on which we normally rely are gradually

being exhausted and, through use and reuse, the supplies derived from these sources are being contaminated. The need for finding additional fresh water sources therefore is obvious.

Results during the past year have demonstrated the need for, the usefulness of, a Government program of this nature. Most industrial firms do not feel justified in carrying on the development of saline water conversion equipment beyond certain improvements in present equipment. To accomplish the demineralization of large quantities of saline water at a fraction of the present cost will, however, require much more development of new principles and processes than improvements in present processes. The Government program assures that research and development investigations will continue both on the development of new and untried methods and on improvements in present methods.

At the beginning of the program, the cost of converting sea water to fresh water by the best processes in use was estimated at about \$400 to \$500 an acre-foot. Accordingly two cost goals were set for the initial 5-year phase of the program, one for water for municipal and similar purposes and one for irrigation water. (For these criteria, no distinction is made as to whether the water to be converted is sea or brackish water.) These goals were \$125 and \$40 per acre-foot (38 and 12 cents per 1,000 gallons), respectively, and they were believed, on the basis of data then available, to represent about the maximum that could be borne by these types of use. Although considerable work remains to be done before those initial goals are fully realized, they are being approached and it is believed they can be reached and lowered if the research is continued. In other words, the results to date indicate that the conversion of sea water to fresh water at a price which municipal users and some industries might pay and the conversion of saline water to irrigation uses may be in sight.

Recent results have indicated that no single process will provide fresh water for all purposes at all locations and under all circumstances. Thus it is desirable that several different principles, processes, and combinations of processes be investigated and developed concurrently. In addition, it is becoming increasingly apparent that nonconventional low-cost energy (e. g., solar, wind, geothermal energy, etc.) must be investigated in connection with process development and use.

Preliminary results obtained from one vapor compression investigation and extrapolated to large-scale operation indicate a good possibility of producing fresh water from sea water for approximately one-fourth the cost of distilling water by any process in use at present.

Preliminary estimates for a critical pressure device of large capacity likewise indicate that fresh water may be obtained from sea water at costs much below those of existing processes if 2 or 3 critical problems now under research study can be solved.

Other processes under development include an ion transfer membrane demineralizer which is undergoing field test at the present time; various aspects of the vapor compression distillation process, some of which will reach field-testing stage next year; solar distillation, solvent extraction, freezing, osmotic processes and ultrasonics.

Initially, most of the research and development on processes has been on a relatively small-scale laboratory basis and only nominal expenditures have been required. Much of this exploratory and more or less fundamental research needs to be continued. However, as individual processes which show sufficient promise are developed in the laboratory, pilot plants or field tests become necessary. Such tests are essential in order to obtain reliable cost estimates and information on the durability of the unit, down time, production capacity, power requirements, corrosion, etc. Developmental work, including field tests of this type, is more costly than laboratory investigations.

Under the provisions of the Saline Water Act of 1952, all work undertaken pursuant to that act must be completed prior to July 15, 1957, the anniversary of the date of the first appropriation to implement it. Not only all research activities and field tests under contract but also all reports thereon and the correlation and coordination of all data must be completed by that date.

Since most research and development contracts are for a period of about a year, it would thus be necessary to terminate most active research contracting by about December 1955 to permit completion of the work under the contract and final reporting of the results and conclusions of the program by July 1957. Only a small portion of the appropriations for fiscal year 1957 could be utilized for contract research just at the time when the need for advanced research and development of promising processes is expected to be paramount.

To permit continuity and the attainment of the program's goals, an extension of time is desirable. The results obtained to date are, as has already been noted,

sufficiently encouraging to indicate that, if the activity is given sufficient time, economical processes for the treatment of brackish water and sea water will be developed. Research of this type is perforce long-range in character. Unless assurance can be given to the private firms and research organizations who are serving or will serve the program as contractors that promising studies will be carried to completion, we will have difficulty achieving worthwhile results even in fiscal years 1956 and 1957. Assurance that the program will not be interrupted is needed now if we are to undertake research that will not be completed until after fiscal year 1957. Interruption or abandonment of the program after fiscal year 1957 would, in any event, dissipate a large part of the valuable results already achieved or anticipated, with a consequent loss to the Government.

Since the initiation of the research program under the act of July 3, 1952, excellent cooperation has been received from various organizations. Efforts are continually being made to encourage private development of processes and to interest industrial firms in the problem. The expansion of our basic authorization proposed in H. R. 2126 to permit an expenditure up to \$500,000 for research to be conducted in existing Government laboratories would, however, prove advantageous in a number of ways. Several individual scientists have had ideas on processes worthy of at least exploratory research effort but do not have laboratory facilities available. Some would be agreeable to having the research carried out at a Government laboratory but the research has not been carried out because of apparent lack of authority to utilize such laboratories. Government scientists, in some cases, have worthwhile research to propose in which they and their laboratory are best qualified to proceed. Another area in which operations in a Government laboratory would be valuable is in making unbiased comparisons of processes and in confirmation of research results. In some cases, Federal scientific organizations offer the only satisfactory personnel and facilities to conduct certain investigations.

The Bureau of the Budget has advised that there would be no objection to the submission of this report to your committee but that no commitment can be made at this time with respect to the amount of \$6 million which the bill, if enacted, would authorize to be appropriated.

Sincerely yours,

FRED G. AANDAHL,
Assistant Secretary of the Interior.

Mr. ASPINALL. Our colleague, Congressman Wilson of California, has a statement which he wishes to present to the committee at this time. We welcome you this morning, and we will be glad to listen to your presentation.

STATEMENT OF HON. ROBERT WILSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. WILSON. Thank you, Mr. Chairman, and members of the committee. I appreciate your giving me just a few moments here to discuss H. R. 2126.

I am from San Diego, Calif., and am very much interested, and our county of San Diego is very much interested, in the sea water conversion program of the Department of the Interior.

I am sure the chamber of commerce out there would not object to my making the statement that we would be a complete desert even now if we did not have water brought in to us from outside our own territory.

We have had an amazing population growth in the past 50 years in California. In our southern California area, alone, we have over 7½ million people. Of course, that means a tremendous use of water. We are always looking ahead to our water needs. We brought in water from the Colorado some thousands of miles, and now we are even looking up into Chairman Engle's territory for possible water sources up there, some means of perhaps pumping it over the range

of mountains and bringing some of his fresh mountain water down from the Trinity River area.

The CHAIRMAN. Will the gentleman yield there?

Mr. WILSON. Yes.

The CHAIRMAN. It is true, is it not, that southern California has water filings in my district north of a line parallel with San Francisco?

Mr. WILSON. You would be the expert on that point, Mr. Engle. I cannot verify that. If you say so, it is true in my book.

The CHAIRMAN. I thank the gentleman.

Mr. WILSON. Seriously, if we look at our population growth, we will find it is right on the ocean. Los Angeles and San Diego, the two major cities in southern California, are right within miles of the Pacific Ocean, and we believe that sea-water conversion holds our greatest promise for our continued population growth.

I was fortunate last summer in going up to Boston, together with Mr. Rogers and some other members of the committee and some of the Senators, to look into two processes that have been included in the Department of the Interior's program. I was particularly impressed with the Hickman still that the Badger Manufacturing Co. is now currently working on. I understand that Dr. Hickman is going to give some testimony here in a few minutes on that subject.

It seems to me that this process holds an exciting promise for a low-cost means of getting water from the ocean. While it probably has yet to be proved, I am hopeful that this committee can extend the authorization of the Interior Department to continue to experiment along such lines and eventually can include the construction of a pilot plant, so that we can test these laboratory theories that seem to be proving out.

I believe the Interior Department has very wisely looked into every possible means of sea-water conversion rather than concentrating on 1 or 2 processes, and then are taking those with the greatest promise and are going to take the next step, which will be a pilot plant to actually test the laboratory tests and to prove out whether it is feasible economically.

It seems to me that in our area we have to look to converted sea water for our domestic use of water. I doubt, frankly, if we can ever get the cost of sea water converted into fresh water down enough to be satisfactory, to be low enough for agricultural use. But certainly, from a domestic use in these great population areas, sea water holds our greatest promise for the future.

I hope you will favorably consider H. R. 2126 and that you will authorize the construction of some pilot plants, once you are sure and the Interior Department is sure they have some methods that hold reasonable promise and expectation of success.

Thank you very much, Mr. Chairman.

Mr. ASPINALL. Thank you, Congressman Wilson.

Mr. SAYLOR. I should like to ask the distinguished gentleman from California a question or two.

Mr. Wilson, you have said that your State has had in the southern end this phenomenal growth of which we all have been apprised by the very able representation that your State has here in the House and the Senate. But you know and I know that regardless of whether you have 1 person there or 7½ million people there, they cannot live without water.

Mr. WILSON. That is right.

Mr. SAYLOR. You have also made the statement that you hope that this committee would see fit to pursue or further assist the Bureau in pursuing research to the end that saline water or brackish water, or whatever is available, might be made usable both for civilian, municipal use, and for probable industrial and agricultural use.

Now in view of the fact that you have $7\frac{1}{2}$ million people in southern California and it is necessary for them all to have water to sustain life, what criteria should this committee use for feasibility? What criteria should the Bureau use for feasibility in view of the fact that the water is a "must" to live?

Mr. WILSON. I think probably the main criteria will be economic, the ultimate cost of the water that will be delivered to the consumer. Yet I do not feel that within the scope of the experiments to date we have been able to get reasonable estimates even on what the cost might be of the processes under consideration. Therefore, we need to continue to invest a small amount of money such as has been invested on determining what the economic justification of sea-water conversion will be.

Mr. SAYLOR. If it is absolutely necessary to maintain life and the people in southern California are going to grow as they have in the past 15 years, then what difference does it make what the cost is?

Mr. WILSON. It is comparative costs actually of one method of getting water over another. That is going to be the ultimate decision we must make, I am sure.

Mr. SAYLOR. Suppose the Bureau comes up with a proposition that it will cost \$200 an acre-foot for water. Would not the people in southern California be willing to pay \$200 an acre-foot for water if it was necessary to maintain life and grow, even though it might be a hundred times more than they are paying for water right now?

Mr. WILSON. I am not prepared to say we would be willing to pay any specific amount for water. Certainly we will pay what we have to pay when the time arrives that we need it. I am confident that we are interested in finding the lowest cost water we can get.

The CHAIRMAN. Will the gentleman yield to me there?

Mr. SAYLOR. Yes.

The CHAIRMAN. The precedent on that point, which I think will be of interest, is that in Colorado Springs where the Air Force has audaciously established an Air Academy, that city has recently offered to pay \$350 an acre-foot to get some water and they were turned down. It was not enough. But they are willing to pay it just the same. I do not know what it is going to cost, of course, to get the needed water for the Air Academy out there. I have been trying to find that out.

Mr. ASPINALL. Might the Chair say that we have four witnesses and it will be necessary to take the time for consideration of their statements this morning so they will not have to be called back here again. I appreciate the contributions of the gentlemen from Pennsylvania and California, but we are rushed a little bit.

The CHAIRMAN. We did not want to argue that point, Mr. Chairman. I just wanted the record to show what one city, dry as bones, is willing to pay for the water.

Mr. CHENOWETH. I want to assure the chairman of this committee that Colorado Springs has plenty of water to take care of the Air

Academy. The water supply has been checked carefully time and time again, and I want to relieve his mind of any apprehension that he may now have concerning the matter.

Mr. ASPINALL. Would my colleague be kind enough to wait until a further moment?

Mr. CHENOWETH. Yes; but I could not let the statement of our chairman go unchallenged.

Mr. ASPINALL. Thank you very much, Mr. Wilson?

Mr. WILSON. Thank you, Mr. Chairman.

Mr. ASPINALL. For the benefit of the committee and the Department, this Subcommittee on Irrigation and Reclamation will hold another meeting on Thursday, the 24th of February, for what the chairman hopes will be the final consideration of the legislation now before us. At that time we shall have the representatives of the Bureau before us before we proceed to amending the bill, if there are any amendments.

At this time the Chair recognizes Mr. Jenkins, with the understanding that we have not longer than an hour, Mr. Jenkins, to make the presentation.

**STATEMENT OF DAVID S. JENKINS, DIRECTOR, SALINE WATER
CONVERSION PROGRAM, DEPARTMENT OF THE INTERIOR—
Resumed**

Mr. JENKINS. Thank you, Mr. Chairman.

I will take just a moment, if I may, to say that under the provisions, which I consider to be so fine, which this committee initiated, of having this work handled by scientists in private life, largely, it has been possible to obtain the assistance and help of some of the best thinking people, the best scientists, in the country.

We have today asked four of the people who are working on this problem to meet with us, and they are all from the nearby north-eastern part of the United States. That does not mean that we do not have work in other places. These people are from New York and New England, but we have work in Ohio, in Michigan, in South Dakota, in Florida, in Texas, in California, and in the State of Washington. We did not want to ask all of them to come in at considerable expense, but in 1 or 2 cases the people who are here will do their best to speak for those who are not here.

With that short introduction, I should like to ask the gentleman who is one of the several actual scientists working on the process known as critical pressure distillation, which I mentioned yesterday as having been suggested earlier by a Swedish scientist, to present his statement. That work is undertaken under contract with the Nuclear Development Associates of White Plains, N. Y. That organization is a young one. It has some 75 senior scientists similar to the one who will be heard from today, and they have many different problems related to activities other than nuclear developments.

With that, I should like to introduce Dr. G. L. Lascerson, who was born in Vienna, Austria, was educated in Columbia University, has a doctor of philosophy in mechanical engineering. His experience has been with DuPont for 5 years and with the Nuclear Development Associates since 1953. His present position is section head at Nuclear

Development Associates, and he has a number of important scientific publications.

Dr. Laserson.

Mr. ASPINALL. We are glad to have you with us, Dr. Laserson.

STATEMENT OF DR. G. L. LASERSON, NUCLEAR DEVELOPMENT ASSOCIATES, INC.

Dr. LASERSON. Mr. Chairman, ladies and gentlemen of the committee:

It is quite an honor for me to appear here and I hope my short presentation will be of some value.

Our company has been working in the field of water purification and research actively for somewhat over a year. We have been doing some survey work on it earlier than that and got quite interested in the critical distillation process invented by Von Platen in Sweden. Then we started to develop and do some research work to determine its actual applicability in large-scale water conversion.

I would like to briefly outline the process on this first slide.

This is a rather crude diagram. Sea water is taken in here [indicating] and pumped up to a high pressure force of 5,000 pounds, passed through the heat exchanger and the separator. In the heat exchanger it picks up most of the heat necessary for the separation and some small additional heat is imposed in the separator. In the separator the water is divided into 2 streams, 1 fresh water and 1 concentrated brine, which is then passed back through the heat exchanger and gives up there heat to the incoming sea water, still at high pressure.

The 2 streams then pass through the 2 turbines where the pressure energy is recovered and used to partially drive the pump. Some additional energy for the pump is, of course, required.

This briefly describes the process as invented by Von Platen.

Mr. ASPINALL. Doctor, do you have a copy of the chart which you have there?

Dr. LASERSON. It is included in the third annual report of the Secretary.

Mr. ASPINALL. Which you are furnishing the committee?

Dr. LASERSON. Yes.

The first thing that we did was to make a brief economic study as to the potentiality of this process. It looked very promising on a purely theoretical basis.

On the basis of available experimental data, which were fairly meager, and present power costs we calculated what it would cost to design, build, install and operate a large-scale plant, and found that if everything worked out all right water costs could be brought down to somewhere in the order of \$100 per acre-foot. Consequently, it looked rather promising compared to other methods, and it was decided to proceed and do further experimental work.

Several serious problems exist as to the feasibility of the process. It is, first of all, necessary to demonstrate how the salts are separated from the water and at what temperatures and pressures this occurs in an optimum fashion.

We have done considerable research on that, and I believe we have covered the field pretty well. We now know fairly well as to the way we want to operate.

This alone is not enough, however. The next question is, can we build such a plant with other materials that can withstand the extreme requirements of the temperature, pressure and corrosion which exists in such a plant. We have conducted research on corrosion and resistance of special materials, metals such as titanium and others, which may be promising in its application. For the moment titanium looks very promising. Further work has to be conducted, however. Corrosion research is a long-term process essentially. You have to wait a long time before anything happens. So this work is still in process.

The third very serious problem is that of scaling and sludging. Naturally, when you try to evaporate water by any process whatsoever, whether high pressure or low pressure, whether high temperature or low temperature, the salts will tend to deposit out on the walls of the equipment. That should be avoided. It has to be avoided to some extent or the means have to be provided for the surfaces to be cleaned, since the equipment otherwise becomes inoperative. In this particular case scaling and sludging is particularly serious because we do operate at very high temperatures, up to around 800° F. The problem thus becomes serious. Furthermore, no past experimental laboratory or plant experience exists under these conditions. So essentially we have to start from scratch and build up that experience.

Now all this work—and there is a lot of it and it is critical—will determine the feasibility of building such a plant.

If I may revert to what I said earlier, the only justification for doing this extensive amount of research work is that the promise of the method is high. The potential is very favorable. Once that has been decided, I think technical work is justified in attempting to reach that potential promise.

The way we are trying to conduct the research is in a step-by-step fashion, one problem at a time. Let us first find out whether one critical problem can be solved. If that is so, let us proceed to the next critical problem. If we reach one stumbling block we cannot overcome, there is no point in spending any further money on this system. So we have been taking one step at a time, and as it stands right now we are concentrating on the problem of scaling, sludging, and corrosion, the problems that govern the construction of the plant.

We also will have to do some experimental work in determining thermodynamic properties of sea water, on which no data exists at present. That work will be undertaken shortly. Once this laboratory work has been completed, and let us assume successfully, for the moment, then the next step is to build a large-scale test facility, experimental research facility, pilot plant, if you wish, in which we can produce water continuously.

Mr. ASPINALL. Would you mind advising this committee the difference between a pilot plant and a demonstration plant right at this place in the record?

Dr. LASERSON. Certainly. A demonstration plant, in my mind, is something that is built when we know all about it and all we have to do is show how it works. A pilot plant, to my mind, is a research facility, a plant in which we do experimentation. We have arrived at design criteria, we think we can now build a plant, but there are always problems that can be licked until you have built small plants. Furthermore, you have to have research facilities on which you can get economic and operating experience, and actually evaluate cost on

practical operation, determine what maintenance problems you run into, what control problems you run into, what kind of training your operator needs. So that, I would say, is a pilot plant. This is a research facility. It is bigger than a laboratory, but it is still a research facility. But in a demonstration plant all you want to do is show how a process works to somebody who is not familiar with it. A rather different aim, I would say.

I think the pilot plant is the one we shall need. We have made some preliminary studies as to what such a pilot plant might consist of, and we have picked an arbitrary figure of a small-scale plant that might produce some 5,000 gallons per day, and it might cost somewhere in the neighborhood of a quarter of a million dollars. This is a rough estimate right now, just to give an order of magnitude idea.

Why does such a plant cost so much money? High-pressure equipment is expensive. The reason why we think the process is economically promising is because, although we use high-pressure equipment, we can cut down on energy requirements.

Just as an illustration, I would like to show you another slide of some of our experimental equipment in the laboratory. That is a view down into a circulating loop into which we pump some of this sea water at pressure up to 5,000 pounds and temperatures of 900°.

To give an idea of the scale of the equipment, it is a cubical, approximately 6 feet on the side. It is small equipment. We can learn a lot from such equipment, but we cannot get operating data and we cannot discover the problems that we will run into when a plant has to be built.

So that is going to be a necessity, provided we can solve the problems that we run into with this. Always "provided." We hope we can. Since we are doing research, we cannot guarantee it.

I think this approximately covers what I wanted to say, and I want also in conclusion to thank Mr. Jenkins and his staff for their very valuable cooperation and guidance in doing this research.

Mr. ASPINALL. Thank you very much, Doctor. If you will take a seat back there until we hear from the others, then we will have you back.

Dr. LASERSON. Thank you.

Mr. ASPINALL. Mr. Jenkins.

Mr. JENKINS. We have been hearing of the Hickman process, Mr. Chairman. Dr. Kenneth C. D. Hickman was born in London. He taught at the Royal College of Science in England. He came to this country about 1924 or 1925, where he was associated with the Eastman Kodak Co. in charge of much of their research. He is credited with discovering molecular distillation of vitamins, and we all know what that means. He was vice president of the Distillation Products Co., a subsidiary of Eastman Kodak, from 1939 to 1948, and in about 1951 he got the idea from his previous work of this high turbulence compression still. He was backed by a local financier, Mr. Dickinson, and after some work, we were approached in the Department for assistance.

The idea was taken to the Badger Manufacturing Co. of Boston, with whom Dr. Hickman is now associated and with whom the Department has a contract for the development of his process.

May I present Dr. Kenneth C. D. Hickman.

Mr. ASPINALL. Dr. Hickman, we are very glad to have you with us this morning.

**STATEMENT OF DR. KENNETH C. D. HICKMAN, BADGER
MANUFACTURING CO., BOSTON, MASS.**

Dr. HICKMAN. Thank you, Mr. President. It is a great pleasure and privilege to present the material to this committee.

I am going to take the liberty of opening the subject in rather broad terms.

The separation of water from salt is something that occurs which scientists call interface, and the greatest interface in nature is the surface of the sea. The composite interface is the surface of the sea and the air above it and the clouds, and the steam goes up from the sea into the clouds and then comes down as rain. You have an enormous area exposed over the whole world.

The efficiency of that natural interface is, according to the temperatures, somewhere between 1 part in 10,000, 1 part in 100,000. If we could remove the air and scientists could get into the surface of the earth, they could make that interchange of rain occur somewhere between 10,000 and 100,000 times faster.

Now the great natural problem then is, How do you draw water and salt apart at an interface? What is the smallest interface you can operate with?

It is a problem. It is a traffic problem. You have got to get the water molecules to go one way and the salt molecules to go the other way, and if you hurry them or squash them too much, they just get bunged up at the interface and will not move.

You see how tremendously important that problem is when you think of the human being. One great function of the body is to separate salt from water, and that is what the kidneys do, and that is the part of the body which wears out first. So in old age you go on a salt-free diet because you cannot separate the salt from the water.

What we are trying to do is produce a kind of mechanical kidney that will give the world the water it needs. There are all kinds of ways we can do this. There are 101 methods, all of them drawing salt and water apart.

Protagonists of the electrical and membrane method say, "We have a little salt to get out of a lot of water. So we will go in and pull it out by electricity or membrane or powder or something." The protagonists of the opposite method say, "No, we will not do that. We will draw the water off the salt."

Now one of the ways of drawing the water off the salt is to try and push the water through an osmotic membrane. Again this traffic problem, because as you push, you push the salt molecules into the membrane and they bunge it up, just like traffic gets stalled when it gets heavy at the rush hour.

Another way is distillation. Now, unfortunately, distillation uses a great deal of heat. For every pound of water that is distilled, a thousand units of heat have to be expended.

I would like to come to the blackboard now, if I might, and get my chart here. I must remind you that the question of how to distill water has been known for a good many thousand years, and this is an improved kind of tube boiler which has been used, perhaps, for the last 100 years.

This pink is the fire underneath the boiler. The green is the water in the boiler. The white is the boiler tubes here. The yellow is the steam and the blue is the distilled water.

The fire goes round the boiler tubes and comes out the chimney. The steam comes off the top and we take it away to the separate condenser.

We are going to need a thousand units—I will not bother to name the units—a thousand units for each pound of water.

Now shortly after Watt invested the steam engine, an Englishman in 1856 got the idea of what is known today as the compression still. It is interesting that the compression still never came into use until 1934, but it was invented in 1856. He got the idea of taking this conventional boiler and taking the steam off the top and feeding the steam back into the boiler, right into the fire box, instead of the coal fire; and he just had to raise the temperature and the pressure of the steam enough so that the steam condensing would pay back this thousand units of heat. He did that by raising the pressure sufficiently so that he had to use about 60 units of heat in this engine here to pay back the heat that was being expended.

Now the well-known Kleinschmidt still, which I believe was made by the predecessor of the Badger Co., was used, of course, extensively in the war for this kind of purpose, and it was able to meet wartime needs. Now for peacetime needs we have got to go down to a completely new order of treatment.

Where do I come in? I come in simply because I have a hunch that I know how to do the distillation thing. I am not saying the distillation of it is better than any of the other methods that could be produced now or in the future, or that are going to be demonstrated today before this committee. I merely say, if we are going to do it by distillation, I think I know how to do it because I think I know what the problem is.

Let us look at this engine here. We have got to take the steam around and push it around these tubes. It has got to get into the water. The water has to raise bubbles which are going to form there to form steam. They are going to push their way on the surface and get up into the pump. This pump has to be what is known as a positive displacement pump.

It seems to me, if we could simplify this so that the steam could get out easier, we might be able to use just a simple fan, a drugstore fan, if you like, to blow the steam from one side to the other.

In 1951 I tried the experiment using a tea tray and a vacuum cleaner motor. I won't tell you it was a gross failure, but it suggested it could be done.

The system is very simple. You pour salt water on one side of the tea tray, let it drip off, take the steam and blow it around the edge and blow it on the back side.

If my drawing is not very convincing, you can see here the white is the tea tray and the green is the sea water poured on one side, and these whirlagigs are the fan blowing the stuff around to the other side.

At this time my good friend Mr. Dickinson came forward and said, "The only trouble is you did not spend enough money on it. Let us try it again." And we tried it again with properly engineered machinery and were surprised to find—now I have got to be a little technical. In the best steam practice today the number of these units that can get through for a rise of 1 degree Fahrenheit on a square foot in an hour is in the order of about 600. That is what, for instance, Detroit Edison got in their big powerhouse in Detroit. They are

using a merit figure of 600. The well-known Badger Kleinsehmidt still has a merit figure of somewhere between six and eight hundred. So the first measurements we did on that gave us a figure of 1,250. At the end of a week we had 1,900; by the time our third model was built, 3,500; and this last week we have realized experimentally for a few minutes only figures up to six and seven thousand.

Now let us take the magic figure of 6,250. What does that mean? That means on one square foot we can make $6\frac{1}{4}$ pounds of water for 1 degree Fahrenheit, and for 10 degrees Fahrenheit we can make 62.5 pounds of water.

Now what is 62.5 pounds of water? A cubic foot. So we can make a cubic foot on a foot area in 1 hour.

Now a depth of 2 feet in synthetic rain would service the Washington area here because, when rain comes down here, it comes down too much at one time and not enough at another time. But if we can make it regular we can get by with a half or a third of the rainfall.

So we can make in 2 hours on an acre as much as would fall on that acre in a year in the ordinary way.

What about power costs?

We have got this figure already, from 60, the Kleinsehmidt still, down to about 15. It takes about 15 B. t. u.'s on this tea tray to push it around from one side to the other.

Where are we practically?

I do not know what the definition, the difference is between a pilot plant and—all I can say is we have made 2 or 3 stills, and on an area of less than the light up there [indicating] we can make the order of three to four hundred gallons a day with the same amount of power that is going into that electric bulb.

I noticed that you were saying a little while ago, or somebody said, what is the criteria of what you can afford.

Supposing we were talking about manufacturing ice in comparison with what it can be got for at the North Pole, it is impossible to do. Yet everybody has an icebox in their kitchen where they pay immeasurably larger amounts for just a few cubes because it is convenient.

We have made our first machine. We have got to the place where we think we know how to make a machine sufficiently cheaply so anybody who wants to live where there is sea water can get water to live there.

The next stage of the process is to get to a reduction to practice on a municipal size. I think that if you gentlemen will support the bill to provide funds for this kind of an experimentation that we can get a reduction to practice very quickly.

I want to state what I mean by a reduction to practice. The motor-car was reduced to practice in 1900, but it is still being improved today. I think the task ahead of this committee is a 10-, 15-, or 20-year task, but I think that we can get an immediate reduction to practice, and I think that every dollar that you funnel into work of this kind will pick up 1, 2, 3, 10, or 100 dollars from industry. You simply act as the leaders in this vitally important type of development.

Thank you, sir.

Mr. ASPINALL. Thank you very much, Doctor.

Would our colleague, former member of this committee, Mr. Crawford, care to come up and sit with us? We will be glad to have you up here.

Mr. CRAWFORD. Thank you, Mr. Chairman. It is a very interesting subject.

Mr. JENKINS. Mr. Chairman, early in the program a number of exploratory research contracts were let in which we simply asked a man to sit down and think about this subject, use whatever laboratory equipment he had, and we did not specify very closely what he should do. I believe we were criticized a little for that, but we felt that that approach in a few cases would produce good results if placed with competent scientific people.

One such contract was placed with the New York State University under Dr. George W. Murphy. He was required to work out the heat and energy requirement for all these processes. In addition, he was required to pick up anything new that he could.

He has followed the membrane process very closely, as well as the thermodynamic processes, and has made a study, both in Europe and in this country, of the membrane processes.

Rather than bringing some of our industrial people in from the membrane work we thought that Dr. Murphy could very briefly mention this subject as well as the thermodynamic processes.

This will take about 5 minutes, I believe, Mr. Chairman.

Now, Dr. Murphy is from the State University of New York. He is chairman of the department of chemistry there. He has a doctor of philosophy degree from North Carolina in 1946. He was with the University of Wisconsin from 1946 to 1951, and with the Argonne National Laboratory of the Atomic Energy Commission from 1951 to 1953.

Dr. Murphy.

Mr. ASPINALL. Dr. Murphy, we are very glad to have you with us, several members of the committee have visited the operations in Boston and seen this procedure in action.

STATEMENT OF DR. GEORGE W. MURPHY, STATE UNIVERSITY OF NEW YORK

Dr. MURPHY. Thank you, Mr. Chairman. It is, of course, a great pleasure for me to be here and talk as much as I can about these things we have been working on, the things we have been observing.

As Mr. Jenkins has indicated, my little discussion here is going to be somewhat different from those two who have gone before. I am going to speak in somewhat more general terms.

Originally I had three topics listed which Mr. Jenkins had suggested, but that has been cut down to two, and the time remaining does not give me much chance to be eloquent on any one of those.

The work that we did at the State University of New York during the fiscal year 1953-54 was of a purely theoretical nature, and I think that this was quite a far-sighted outlook on the overall saline water program by the administration of that program.

The idea was to take a good broad look at the energy requirements for methods in general, particularizing on those which were leading methods at the time, and to see what we could come up with as a sort of energy requirement for a practical process.

Now, any student of physical chemistry at college can calculate for you in a very few minutes what the so-called minimum thermodynamic requirement is for sea water demineralization. It is about

2.8 kilowatt-hours per 1,000 gallons, and at average industrial rates this would bring water, if you counted only the energy costs alone, within the reach of any municipality or for any irrigation use. But this figure, which is so easy to get, requires unlimited means, and of course unlimited means are never at hand. It is a much more difficult problem to calculate a minimum that is in practical attainment, and that is the job we set out to do.

Without going into the details of the methods of our calculations, I can say that it is based on a fairly new development in physical chemistry, which may be referred to as thermodynamics as irreversible processes, as opposed to, classical thermodynamics of equilibrium processes. On the basis of certain idealized, but somewhat practical, processes, we come out with a conclusion that a practical minimum energy requirement is about 4 times the classical minimum of 2.8 kilowatt-hours per 1,000 gallons. In other words, about 12 kilowatt-hours per 1,000 gallons.

Now energy is the real key, you see, to economical sea-water demineralization. It is not the only thing by any means. Of course your plant costs are very important, but we have taken these into account more or less in arriving at this so-called practical minimum.

This figure that we have arrived at is not what we would call a probable attainable minimum, it is a minimum which might be achieved if leading methods were developed to their absolute ultimate efficiency.

Now, because the electrical membrane process is one that has received a rather intensive report from this saline water program, I am going to say a few words about that at this time.

This is one of the methods, of course, we considered in some detail in this theoretical study. We are not working on membrane development at New York. However, we are presently working on a process which will use membranes, but it is not a conventional use. However, I have made some study of membranes, so I think I can tell you something about the process.

First of all, we have to take a look at what salt looks like what you dissolve it in water. Salt is the principal dissolved constituent of sea water, and we all know, of course, when you put the salt in water and shake it up the salt disappears. But if we could take a look with a very, very powerful supermicroscope, one, of course, which we do not have, we would see that the particles of sodium chloride break up into charged constituents, two charged constituents, which are sodium and chloride ions. The sodium ions have a positive charge and the chloride ions have a negative charge. We know this because, if we put electric poles in the solution and connect them to a battery, the sodium ion goes toward the negative pole and the chloride ion goes to the positive pole.

Now this is the basis for one method of demineralizing water, the electrical method, but it is not efficient unless you have sieves which will sort out these two ions, and the so-called perm selective membranes which are the basis of the membrane process are the sieves which sort out these ions.

One type of membrane sorts out only sodium ions and the other type of membrane sorts out only chloride ions. And when we put these membranes in a stack of alternating membranes type and form a cell, fill the cell with sea water, and connect the ions through elec-

trodes to a battery, we find alternate compartments in the cell have had their salt taken out. In contrast to the method which Dr. Hickman talked about, this is a method for removing salt from sea water instead of removing water from sea water.

Now on the basis of presently available evidence, this method has turned out to be quite effective for the demineralization of brackish water. Brackish water contains, roughly, a tenth as much salt as sea water, and the energy costs for this process for a given piece of equipment depends upon the amount of salt that is there. You can say, roughly, if it costs you so much to demineralize a sample of brackish water, it will cost roughly 10 times that much to demineralize sea water. So at the present time sea water is not in that picture, but the saline water conversion program has been pushing rather vigorously the use of this method for the demineralization of brackish water. This includes a pilot plant, and on this pilot plant, which is mounted in a trailer so it can be moved to various brackish water sites, tests are now being carried out. As far as I have been able to determine, these tests prove everything that has been predicted in the laboratory studies.

I would like to close by just saying one thing that we are doing up in New York in relation to these membranes.

We have devised a way by which we can put membrane stacks together which do not require electric energy. A new type of power source is involved there which uses essentially brine in combination with the source, saline water, to move the sample of salt out of another bit of saline water, and we think that this particular method is rather promising and should be developed further.

Thank you.

Mr. ASPINALL. Thank you very much.

Off the record.

(Discussion off the record.)

Mr. ASPINALL. Proceed, Mr. Jenkins.

Mr. JENKINS. Mr. Chairman, we usually try to ask the ladies to speak first, but in this case we thought it would work out a little better if Dr. Maria Telkes appeared last of the four.

Dr. Telkes is experienced in many physical and chemical pursuits. She has been at Massachusetts Institute of Technology and is now at New York University. She is working at New York University as the project leader on the development of solar energy stills. She is one of the three under contract for that purpose. One of the other two is in Madison, Wis., the other in Denver, Colo. In addition, work is being conducted at the University of California in cooperation with this program on solar distillation.

I have asked Dr. Telkes this morning if she will describe briefly what she is doing in this field at New York University and also cover quite briefly what the others are doing in their behalf.

Dr. Telkes was born in Hungary. She is a physical chemist. She has been interested in solar energy since high-school days. As I mentioned, she was at MIT for a number of years. She developed the life raft still and that was used during the war. She has been instrumental in building one of the first, or perhaps the first, sun-heated houses in Cambridge, Mass. She studied conversion of solar energy into electrical energy and is now at New York University in charge of solar energy projects.

Dr. Telkes.

Mr. ASPINALL. Dr. Telkes, we are very glad to have you here this morning. We have two members of our committee who are distinguished representatives of your sex. An additional welcome, therefore, goes to you.

STATEMENT OF DR. MARIA TELKES, NEW YORK UNIVERSITY

Dr. TELKES. Mr. Chairman and ladies and gentlemen, solar energy can be used to produce fresh water from sea water. As you know, nature does that on a tremendous scale when the sunshine evaporates water from any open water source, lakes or ocean, and the water is lifted as vapor, condenses into clouds, and finally falls down again as rain.

As Dr. Hickman mentioned, this process is very inefficient, and the whole solar distillation idea is, of course, centered on making the process more efficient so that by some device we can change sea water or salty water into fresh water.

We would actually obtain the purest distilled water, as pure as the rain water itself, with this method.

Actually, we should stop for a moment to realize that all processes, whether they are membrane processes or other artificial distillation processes using fuel or electric power, have to consume actually fuel, coal, oil, perhaps hydroelectric power, but power is necessary, which man has to make. However, solar distillation methods would use entirely the sun only as the source of power, and in this way we would conserve our fuel supplies which otherwise would have to be used to produce fresh water from sea water.

Besides, we all know that the sun is, above all, responsible for desert conditions or for lack of water, and you know in tropical countries, in the arid desert regions, there is a tremendous amount of sun mostly all the time. If we could convert all of this solar energy into producing fresh water, even with the simplest of processes we may be obtaining two pounds of fresh water daily from each square foot of surface which receives sunshine at a favorable angle.

Now a device of this type has actually been made some 70 years ago in Chile, near the equator, or almost, and this device has been very satisfactory and it has been in operation for at least 36 years continuously. It covers almost an acre and it was quite satisfactory, although it was too expensive and too inefficient at that time.

These experiments had been quite forgotten when during the war it became imperative that fresh water should be obtained from sea water for life rafts. I was lucky at that time to be interested at MIT in solar stills and devised these which have been actually used in life rafts and are still standard equipment on board Army and Navy life rafts. These [indicating chart] are closed in the life raft, are inflatable, and produce about enough water for a man a day. Actually I understand several hundred thousand units have been actually acquired for this purpose.

Now the next slide shows a land edition, a land-sized edition. This is a skeleton made of wood. Sea water is in the bottom of this still in a pan. The sun shines through the top, which is transparent, heats the water in the pan, it vaporizes and condenses inside of this stand [indicating] and runs down as fresh water.

In the next slide I show a still of this type, only a larger type, which is next to the ocean, as you can see. You can see the water running in here [indicating]. This actually I built almost 10 years ago. But large stills of this type were actually used and have been experimented with at the University of California by Dean Everett Howell, who is in charge of that project. Those stills, which cover 1,000 square feet in area, have been in operation for almost 3 years now continuously.

On the next line I show a totally different type of possibility, using reflector which has been built in Egypt in 1913. This parabolic reflector is arranged so that the radiation must focus, so that steam would be generated. The steam, of course, could be used in any conventional type of process of distillation. The Battelle Memorial Institute under Dr. Landry, has made a study of the possibility. It was not an experimental study, but an engineering evaluation, and the conclusion was reached that it is completely feasible to produce fresh water from sea water, but it would be much too expensive.

On the next slide I show an experimental unit made by the Bjorksten Laboratories, Dr. Johan Bjorksten, which is really roof-sized unit, which I showed you before, and using plastic material instead of a glass top because it is expected that plastics may be cheaper. It is, of course, dubious when plastics will actually be durable. We know that glass is because the Chile solar still which uses a glass actually survived 36 years. Some of the plastics made have only been in existence for a few years. I mean a good type of plastic.

This next slide will show you a different type of still, which is a long tubular still, which has similar possibilities of perhaps lower cost. We do not know yet.

I forgot my newest type of still, which is a tilted still in contrast to the roof-type still. This is the hope of possibly making stills which will be durable at a lower cost, and there is also the possibility, which is easily done because it reduces the initial investment costs, and it would probably decrease the operating costs to a minimum.

That is all the slides I have.

You may well ask, what are the possibilities?

In conclusion, I would like to state, at the present time the investment in any size of waterworks is approximately \$1 to \$4 daily-gallon water production. In California some of the big institutions in San Francisco or Los Angeles with the long-range aqueducts have an initial cost of some \$4 per daily-gallon water yield. It is possible that solar distillation may be produced at such a figure or possibly even slightly lower. The operation, of course, will definitely be the lowest cost possible because the fuel is actually free for the taking.

I believe solar distillers have great possibilities in the arid tropical zone, in most of the southern parts of the United States, and this will be a natural process where you have the least reliance on any other fuel or power resource except the sun, which is the most powerful source, even above any atomic power or other power expectation.

So I hope that you have been convinced that solar energy has some merit, especially in California and Southern States.

Thank you.

Mr. ASPINALL. Thank you very much, Doctor.

Now will the other witnesses return to the witness stand?

It has been a very interesting presentation. The committee is very sorry that the time has been so short. That is the way we do things in Congress generally. We do not have time enough to get to the bottom of matters as we would like.

Does the gentleman from Texas have any questions?

Mr. ROGERS. I have no questions right at the present, except the observation that I was in Boston with the committee last year and enjoyed very much that visit.

Of course, water is something that is vital to my section of the country and we were very interested in the processes.

I sincerely hope that these splendid and very able scientists will be able to do something that will relieve us of the tragic situation in our section of the country.

Mr. ASPINALL. The gentleman from Pennsylvania?

Mr. SAYLOR. Mr. Chairman, I would like to commend the four witnesses we have had on their excellent presentation of the respective methods of producing water. I would like to ask them just one question.

As scientists, do you feel that our committee by limiting this experiment which you are undertaking to merely saline water is preventing you from doing the kind of research that you should do?

The reason I ask that question is this: It has come to my attention that in certain sections of the country, when they drill sometimes they get oil, sometimes they get gas, but many times they get water. The type of water that they get in those holes may have in it a tremendous amount of minerals. The question is whether or not, by being limited, as you have been in the past, to merely the saline feature you have been hampered, and whether or not we should expand this to provide you with a free hand in research to producing water from whatever source possible, whether it be water full of sulfur, or other minerals which make it unpotable and unusable. I do not care which one answers the question. I would just like to have the information for the benefit of this committee, your honest appraisal of it.

Dr. HICKMAN. May we say, sir, we consider our project applicable on the whole range. We are not in the least bit cramped.

Dr. TELKES. Solar distillation, of course, would distill any water and would produce pure distilled water from it. It makes no difference whether it is sulfur or any other type of material.

Dr. LASERSON. I would like to add, the process I have described looks economically best for high concentration of salt water. For low concentration brackish water and other mineralized waters, I think I should defer to Dr. Murphy to mention something about ion exchange membranes, which are probably more economical.

Dr. MURPHY. For low concentrations of salt, any ionized material, which includes common salt and the things which contribute to it in the water—the electrical membrane is more efficient the lower the concentration. Consequently, I would think that method would have considerable application in certain types of water that are less familiar than the brackish waters and sea waters.

I think I would like to make the additional general comment, however, that there has been a clear demonstration of the need for demineralization of both brackish and sea water, and I think this other question you bring up should be considered in the light of the need at the point these waters are found.

Mr. ROGERS. Will the gentleman yield?

Mr. SAYLOR. Yes.

Mr. ROGERS. One of the plants was taken to Arizona last fall, was it not?

Dr. MURPHY. Yes.

Mr. ROGERS. That is the membrane process?

Dr. MURPHY. Yes.

Mr. ROGERS. For the purpose of separating the water, that is, underground waters?

Dr. MURPHY. Yes.

Mr. ROGERS. I wonder if there is a report prepared or filed on that yet.

Dr. MURPHY. Those tests, I believe, have just gotten underway. That is, there was considerable timelag in getting the equipment down there and setting it up. They have performed some trial runs on it, but there is no formal report as yet.

Mr. ASPINALL. Mrs. Pfost?

Mrs. PFOST. Mr. Chairman, I would like to ask Dr. Telkes about the little stills which you showed in the slide that are taken out on the large lift raft, which produce approximately a quarter of a gallon or at least a quart of water each day per man, is that completely in the experimental stage or are they being supplied in quantity?

Dr. TELKES. Those little stills are standard equipment on liferafts right now. They are standardly issued with the liferafts. Some several hundred thousand units have been actually manufactured for liferaft use and are in use. The only difficulty is that these are very expensive units. On liferafts you have to spare volume and weight; therefore, these must be made to inflate and to occupy the least space. They are not useful at all for land, just especially for liferafts.

For land use, of course, a totally different type of still is desired, which should be rigid, not blown about by the winds, and which would not have to float. Although it would be possible to use large installations of these models that would float in lagoons near the seashore. That is also a possibility. In this way you would eliminate the need of building on land near the ocean. These are not experimental any more. They are actually in use, although they are much too expensive to be used for large-scale water conversion.

Mrs. PFOST. What is used for the top covering on the stills? Is it plastic?

Dr. TELKES. It is a plastic material, a vinylite. It is similar to the raincoat materials which everybody is familiar with. However, that material is not durable enough so that it could not be used without any difficulty for a long-range installation. One of the other considerations to take into account is that devices one should build should last at least 20 years, or, I believe, perhaps, some of them 30 years. As far as we know the material requirements are for 20 or 30 years. They must be very exacting.

Mrs. PFOST. Thank you. Now, on your solar experiments, do you find that there is sufficient sunshine on both the east and west coasts here in the States that you feel it would be a practical solution for desalting the sea water?

Dr. TELKES. I believe that the solar devices would be useful primarily in regions which have plenty of sunshine all the year round and which need water very badly.

As somebody mentioned, in San Diego or in some other places they would be glad to have water even if it cost \$300 per acre-foot.

Now actually where water is the most urgently needed and where the sun is very strong, those will be the regions which logically would go in for solar distillation first. I am not suggesting that in Chicago or in New York or in similar regions you would use solar distillation at all, nor that should be reserved to the very, very sunny South.

Mrs. PFOST. Thank you very much, Dr. Telkes.

Mr. ASPINALL. The Chair recognizes the gentleman from Arizona, Mr. Rhodes.

Mr. RHODES. Dr. Murphy, I am interested in your previous discussion of the new process which you have, in which you stated that perhaps no electricity would be required. From what little I know about the process, you use an electrolytic process to ionize or break down the molecules; do you not?

Dr. MURPHY. No. The ions are already in solution. That is, as soon as you dissolve the sodium chloride in solution it forms ions automatically. The present electrical process simply moves ions, moves the positive ion this way [indicating] and moves the negative ion that way [indicating], and by a sorting action of these membranes you get compartments which are free of both ions and other compartments which have more than they started with. But it does not break up the salt.

Mr. RHODES. What do you use energy for—just to transport the water from one place to another?

Dr. MURPHY. You use it to transport the salt from one place to another; that is right.

Mr. RHODES. What type of membrane do you use?

Dr. MURPHY. We at New York have only been doing some small-scale experimentation with commercial membranes made by Rohm & Haas. Of course, the Ionics Co. has the contract with the saline water conversion program and makes their own membranes, and they have not disclosed the exact nature of these membranes.

Mr. RHODES. Dr. Telkes, in the solar-energy process thus far, as I analyze the project, you apply the solar energy directly to the water. Has there been any experimentation involving the possibility of a solar to perhaps provide the energy for some of the other projects such as the still which Dr. Hickman talked about?

Dr. TELKES. There are some experimental installations. Solar furnaces have been built. I built one myself. It is possible to derive power from solar furnaces, see, or from parabolic reflectors such as I have shown in the slide. However, the outlook for solar power to operate these other devices seems to be one which is technically feasible, but it might be too expensive for practical use. Estimates have been made by Dr. Lof under one of the contracts, and he came to the conclusion that at the present time electric power or motive power from solar energy would still be too expensive and, therefore, the use of solar energy for distillation would be less expensive and more desirable.

Mr. RHODES. That is all.

Mr. ASPINALL. Thank you. Again we thank all of you very much. We wish we had more time. I am sure you have contributed very extensively to the program.

Thank you, Mr. Jenkins, for making this information available to us.

The committee is adjourned.

(Whereupon, at 12:10 p. m., the committee recessed to reconvene at 10 a. m., Thursday, February 24, 1955.)

CONVERSION OF SALINE WATER TO FRESH WATER

THURSDAY, FEBRUARY 24, 1955

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND
RECLAMATION OF THE COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS,
Washington, D. C.

The subcommittee met, pursuant to recess, at 11:05 a. m., in the committee room, New House Office Building, Hon. Wayne N. Aspinall (chairman) presiding.

Mr. ASPINALL. The Subcommittee on Irrigation and Reclamation of the Committee on Interior and Insular Affairs will be in session for the further consideration of H. R. 2104 and H. R. 2126, identical bills.

At the last hearing we had placed in the record the report from the Department, which included the reference to the position of the Bureau of the Budget, which reference reads as follows:

The Bureau of the Budget has advised that there would be no objection to the submission of this report to your committee but that no commitment can be made at this time with respect to the amount of \$6 million which the bill, if enacted, would authorize to be appropriated.

This is rather a peculiar statement to have included in a departmental report and can be given different meanings. Because of that situation I asked our staff member, Mr. McFarland, to find out, if he could, why it was included as far as the meaning of the Bureau is concerned.

Mr. McFarland, will you explain to the committee?

Mr. McFARLAND. Yes, sir, Mr. Chairman.

At your request I did call the Bureau of the Budget and talked to Mr. Green of the staff who worked on this particular legislation. The Bureau of the Budget does favor the continuation of this research program. The Bureau of the Budget did not want to be committed to the expenditure of \$6 million in this specific 10-year period.

In other words, the Bureau of the Budget took the position that the Department should justify year by year the budget request based upon the work they proposed for that particular year.

I might just, in elaborating a little further, say that the legislation does not direct the executive branch to spend \$6 million in 10 years.

Mr. ASPINALL. And Mr. McFarland, as I understand the procedure, it will be necessary for the Department to present its request to the Bureau of the Budget, as usual, each year and justify its request for funds, and then they must come before the proper committees of the Congress and further justify their request. Is that not right?

Mr. McFARLAND. That is right.

Mr. SAYLOR. In other words, Mr. McFarland, the only effect then is that while the Bureau of the Budget approves this project and approves the type of work that is being done by the Interior Department in this respect, they are not going to tie their hands for the next 10 years. Is that in a sense what they have said?

Mr. MCFARLAND. That is correct.

Mr. ASPINALL. At the conclusion of our last hearing on this legislation it was stated by the chairman that we would have before the committee this morning for questioning, Mr. Frye and Mr. Jenkins of the Bureau. Will you gentlemen take your chairs at this time.

STATEMENTS OF EDWARD FRYE, SPECIAL ASSISTANT TO ASSISTANT SECRETARY AANDAHL, AND DAVID S. JENKINS, DIRECTOR, SALINE WATER CONVERSION PROGRAM, DEPARTMENT OF THE INTERIOR

Mr. ASPINALL. Do either of you gentlemen have any further matters which you wish to present to the committee?

Mr. FRYE. I have nothing further, sir.

Mr. JENKINS. Mr. Chairman, we have one additional letter from from one of the advisers. Earlier seven letters had been received concerning this proposed legislation. One additional letter from the president of Massachusetts Institute of Technology has been received.

Mr. ASPINALL. Will you hand the letter to Mr. McFarland, please? (The letter was handed to Mr. McFarland.)

Mr. ASPINALL. This is a copy of a letter which you have in your possession?

Mr. JENKINS. Yes, Mr. Chairman.

Mr. ASPINALL. Without objection, this letter will be made a part of the record of the hearings.

Hearing no objection, it is so ordered.

(The letter referred to follows:)

MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
Cambridge, Mass., February 16, 1955.

Mr. FRED G. AANDAHL,
*Assistant Secretary of the Interior,
United States Department of the Interior,
Office of the Secretary, Washington 25, D. C.*

DEAR MR. AANDAHL: I am glad to express my concurrence with the proposal that Congress be requested to extend the Saline Water Act for a period of 5 years. It is important that there be a sustained program of research and development if we are to come up with new developments, and the extension of the act will help to accomplish this.

Yours sincerely,

J. R. KILLIAN, Jr., *President.*

Mr. ASPINALL. Do you have anything else, Mr. Jenkins?

Mr. JENKINS. I have no other testimony, Mr. Chairman.

Mr. ASPINALL. Does any member of the committee wish to question further either Mr. Frye or Mr. Jenkins?

Mr. SAYLOR. I have just one question. I think both of you gentlemen were in the room the other day when I asked the four scientists you had here for your demonstration the question of whether or not by using the words "saline waters" we were limiting them in their research in any way. You will recall that three of them stated that

the processes that they were using were such that they would produce potable water regardless of what type of water was used, and the fourth gentleman stated that his experiment was based solely upon sea water.

Mr. JENKINS. Yes.

Mr. SAYLOR. Now the question I would like to ask is whether or not you feel that the words "saline water" as used in this bill is broad enough to cover brackish waters, sulfur waters, or any other waters containing minerals of any sort that you might be called upon to turn your scientists loose on to produce pure water.

Mr. JENKINS. Yes, Mr. Saylor, I believe that the term "saline water" is sufficiently broad to cover all salts that are dissolved in waters, and that includes quite a long list of many, many different compounds. The sulfates, the sulfur waters that were mentioned earlier are saline waters. We are inclined to consider saline waters as those containing only sodium chloride, table salt, but some of the greatest problems, especially in industrial waters, arise from salts other than sodium chloride.

We have had many inquiries from different potential users of demineralized water. One has come from the oilfield people who have a problem with oilfield brines. Those brines contain many different salts other than sodium chloride. I think the term is sufficiently broad.

It might be interesting and possibly it might be well if there were placed in the record a table which I have showing some 44 different elements contained in sea water, all of which are considered as a salt of one kind or another.

Mr. SAYLOR. Mr. Chairman, I ask unanimous consent that the list Mr. Jenkins has referred to be made a part of the record.

Mr. ASPINALL. You have heard the request. Is there any objection?

Hearing no objection, it is so ordered.

(The table referred to follows:)

Elements in solution in sea water

Element	Parts per million	Pounds per acre-foot	Unit market value	Value per acre-foot
Chlorine	18,980	51,600	\$0.03 per pound	\$1,543.00
Sodium	10,561	28,700	\$0.16½ per pound	4,735.50
Magnesium	1,272	3,460	\$0.20 per pound	692.00
Sulfur	884	2,400	\$18 per ton	21.60
Calcium	400	1,090		
Potassium	380	1,030		
Bromine	65	177	\$0.21 per pound	37.17
Carbon	28	76	\$100 per ton	3.80
Strontium	13	35.4		
Boron	4.6	12.5		
Silicon	.02-4.0	.05-10.9	\$22 per ton	.10
Fluorine	1.4	3.8		
Nitrogen (compound)	.01-0.7	.03-1.9		
Aluminum	0.5	1.36	\$0.16 per pound	.20
Rubidium	0.2	0.55		
Lithium	0.1	0.27	\$10 per pound	2.70
Phosphorus	.001-0.10	.003-.272	\$0.33 per pound	.08
Barium	0.05	.136	\$0.10 per pound	.02
Iodine	0.05	.136	\$2.40 per pound	.33
Arsenic	.01-.02	.027-.055	\$0.85 per pound	.04
Iron	.002-.02	.0055-.055	\$0.72 per pound	.03
Manganese	.001-.01	.0027-.027	\$0.35 per pound	.01
Copper	.001-.01	.0027-.027	\$0.18 per pound	
Zinc	.005	.0136	\$0.10 per pound	
Lead	.004	.0109	\$0.12 per pound	
Cesium	.002	.0055		
Uranium	.0015	.0041		
Molybdenum	.0005	.00136	\$2.80 per pound	.39
Thorium	.0005	.00136		
Cerium	.0004	.00109	\$1.25 per pound	.15
Silver	.0003	.00082	\$0.73 per ounce	.96
Vanadium	.0003	.00082		
Lanthanum	.0003	.00082		
Yttrium	.0003	.00082		
Nickel	.0001	.00027	\$0.40 per pound	
Scandium	.00004	.00011		
Mercury	.00003	.00008	\$1.00 per pound	
Gold	.000006	.000016	\$35.00 per ounce	.90
Radium	0.2-3×10-10	0.55-8.15×10-10		
Cadmium			\$2.00 per pound	
Chromium			\$1.12 per pound	
Cobalt			\$1.80 per pound	
Tin			\$0.77 per pound	
Selenium	.004	.0109		

Mr. ASPINALL. Mr. Rhodes, do you have any questions?

Mr. RHODES. I have no questions.

Mr. ASPINALL. Mr. Utt, do you have any questions?

Mr. UTT. No questions.

Mr. ASPINALL. Thank you very much, Mr. Frye and Mr. Jenkins for your presentation. It has been very instructive and very entertaining for scientific matters as far as laymen are concerned.

Mr. SAYLOR. I might say, to corroborate your statement, I do not believe I have ever seen a series of hearings by this committee in which there was more interest by members on a matter which to some people might be very abstract. It was produced in such a manner that it held the attention of the committee, and I think the Bureau and Mr. Frye and Mr. Jenkins should be commended for it.

Mr. FRYE. Thank you.

Mr. ASPINALL. The hearings are closed. We will now go into executive session.

(Whereupon, at 11:20 a. m., the committee proceeded in executive session, and subsequently favorably reported H. R. 2126 to the full committee. H. R. 2104, an identical bill, was tabled.)

84TH CONGRESS
1ST SESSION

H. R. 2126

IN THE HOUSE OF REPRESENTATIVES

JANUARY 13, 1955

Mr. ENGLE introduced the following bill; which was referred to the Committee on Interior and Insular Affairs

A BILL

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C.,
4 secs. 1951 ff.), is hereby amended as follows:

5 (1) By modifying subsection (a) of section 2 of said
6 Act so as to read: "by means of research grants and contracts
7 as set forth in subsection (d) of this section and by use of
8 the facilities of existing Federal scientific laboratories within
9 the monetary limits set forth in section 8 of this Act, to
10 conduct research and technical development work, to make
11 careful engineering studies to ascertain the lowest invest-

1 ment and operating costs, and to determine the best plant
2 designs and conditions of operation”.

3 (2) By modifying section 8 of said Act so as to read:
4 “There are authorized to be appropriated such sums, but
5 not more than \$6,000,000 in all, as may be required (a)
6 to carry out the provisions of this Act during the fiscal years
7 1953 to 1963, inclusive, (b) to finance for not more than
8 two years beyond the end of said period such grants, con-
9 tracts, cooperative agreements, and studies as may thereto-
10 fore have been undertaken pursuant to this Act, and (c)
11 during the same additional period plus one more year, to
12 correlate, coordinate, and round out the results of studies
13 and research undertaken pursuant to this Act. Departmental
14 expenses for direction of the program authorized by this Act
15 and for the correlation and coordination of information as
16 provided in subsection (d) of its section 2 shall not exceed
17 \$1,500,000, and not more than \$500,000 shall be expended
18 for research and development in Federal laboratories. Both
19 of said sums shall be scheduled for expenditure in equal
20 annual amounts insofar as is practicable.”

84TH CONGRESS
1ST SESSION

H. R. 2126

A BILL

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

By Mr. ENGLE

JANUARY 13, 1955

Referred to the Committee on Interior and Insular Affairs

PERSONAL VIEW

(By Wayne W. Parrish)

DETERIORATION

For those who have known the Civil Aeronautics Board best through the years since its creation in 1938, its steady deterioration especially during the past several years, has been the source of increasing alarm and concern. Unless there is a positive change of direction, there can be nothing but trouble ahead—trouble which will be to the detriment of the entire air transport industry.

The Eisenhower administration has been aware of this deterioration. Many promises of corrective action have been made. But so far nothing has happened to halt the decline of this vital five-man Board which was created in 1938 as a quasi-judicial agency.

The sad truth is that CAB is no longer functioning as a quasi-judicial body. It relies on expensive and painstakingly prepared records only to support language and points for decisions which, in many cases, have been made months before the cases were even formally submitted to it, and sometimes before cases have even begun.

One observer who knows the CAB intimately has this to say: "All five members appear to be caught in the tide of an intangible force which compels them to put their personal reasons, ambitions, antagonisms, and political alliances ahead of the judicial reasoning which the Civil Aeronautics Act requires. At the present time not one member of the Board is voting as an impartial judge."

Another close observer commented recently that every case before the Board is like a crackerjack box—"a prize in every package." Weighty problems are getting only cursory attention. No real thinking is going into the votes. It isn't crookedness that prevails—it's a shallowness arising from the weight of pressures, personal feelings, and politics. For the past 6 months the situation has become more embroiled than ever through the rivalries of the 3 Republican members, 1 wanting to be reappointed, and all 3 wanting to be Chairman.

The airlines themselves are being criticized for the political and other pressures they're exerting on pending cases. Those who say they don't want to win cases by the back door insist they have to do so because their competitors do, so it's a matter of self-defense. There is considerable logic in the argument, for the Board itself has within its power the ability to stop backdoor maneuvering.

Those who want the Board to succeed and those who have watched it closely through the years are genuinely alarmed. Continuation of the present trend will lead to major trouble; the explosion won't be pleasant for anyone.

Hon. Pat McCarran

SPEECH

OF

HON. EUGENE J. KEOGH

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

Wednesday, January 5, 1955

Mr. KEOGH. Mr. Speaker, it is very difficult for me to contemplate Congress divested of the presence of the Honorable PAT McCARRAN, of Nevada. With all deference to the other distinguished men who have been privileged to represent this great State of Nevada, it had seemed for more than 20 years that Nevada and

PAT McCARRAN were virtually synonymous in Washington. Nevada never had cause to complain that its interests were not being diligently and courageously represented. Senator McCARRAN was the vigilant sentry, the tenacious battler.

Coming to Washington with a distinguished background as lawyer and jurist, he soon demonstrated that he was, above all, a lawmaker of great craftsmanship. He abhorred careless legislating. He believed that the great body of the law could and should be shaped and reshaped to serve the changing requirements of an ever-growing Nation, but he demanded the painstaking approach. His resistance to legal tinkering and experimentation was prodigious.

Senator McCARRAN strove for orderliness in the complex of Federal statutes. His service as chairman of the Senate Committee on the Judiciary gave him countless opportunities to work for sensible legal reforms, and he welcomed them as a passionate believer in the importance of firm legal basis for every action of Government.

Few Members of the Congress have had the capacity for so wide a range of legislative interests. Among the measures in which his authorship loomed large were the Civil Aeronautics Act of 1938, the first Urban Redevelopment Act passed by Congress in 1944, the Reorganization Act of 1944, the Federal Airport Act of 1945, the Administrative Procedure Act of 1946, the Internal Security Act of 1951, and the Immigration and Nationality Act of 1952.

Senator McCARRAN was a dedicated patriot. He was born and reared among pioneers in a pioneering State. He knew from personal experience that the greatness of the United States of America was built by hard work. He could not abide apathy where the national interest was concerned. During most of his service in Congress, he lived and worked in an atmosphere of present or impending dangers.

He never underestimated the perverted skills of the agents of international communism, but he never doubted the ability of a republic to meet and best them without compromising its own liberties in the doing. Because he knew the measure of the Communist menace, Senator McCARRAN fought for the improvement of domestic legal weapons against its operatives. In the field of diplomacy, his views were equally realistic. Never a warmonger, he believed in preparation against the horrible worst, and he advocated seeking allies among those who not only said they opposed communism but also gave evidence of their willingness to take up arms against the evil movement, should eventualities dictate.

It was my privilege to enjoy the counsel of Senator McCARRAN on numerous occasions. As a fellow lawyer, I came to know and marvel at the breadth of his legal comprehension and the incisiveness of his thinking. His passing, an incalculable loss to the Nation and to his great State, represents a deep personal loss to me. My sympathy goes out to the fine family he left in moving on to his reward.

Saline Water Conversion Program

EXTENSION OF REMARKS

OF

HON. CLAIR ENGLE

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

Thursday, January 6, 1955

Mr. ENGLE. Mr. Speaker, I am introducing legislation to amend the Saline Water Act of 1952, to provide for its uninterrupted continuation and to enable the officials in charge of the program to have the advantage of a limited amount of technical assistance from existing Federal scientific facilities. I authored the 1952 legislation which initiated the saline water conversion program. This program, under the direction of the Department of the Interior, has the objective of developing economically feasible processes for converting saline water to fresh water. I am concerned at all times over our diminishing water supplies, both in this country and throughout the world. As the water needs of our country grow and our available supplies dwindle, the importance of water to our well being and to our overall national economy is impressed upon us more and more.

I have followed closely the program which has been conducted under the 1952 legislation. Much progress has been made and it now seems clear that the results of the research and the studies now under way will, if given time, result in large-scale conversion of salt water to fresh water for municipal and industrial purposes. It also seems clear that, in time, conversion of sea water as well as brackish water for agricultural purposes in certain areas will be achieved. Although it had been thought that the extension of the program should be made toward the close of the initial 5-year period progress now indicates clearly the desirability of assuring at this time continuity and some minor expansion of activity to accommodate and make full use of the initial results now flowing in. There should be no slowdown or interruption in the program, and both the Department and private industry, which has assisted in the research, should be given assurance by this Congress that the program will be continued. For these reasons, I am introducing legislation at this time.

The Secretary of the Interior has just transmitted to the Congress his third annual report covering this program, and I am pleased to report briefly to my colleagues upon the progress that has been made.

The Department of the Interior accomplishes this saline water conservation program by conducting scientific research and development through federally financed grants and contracts, encouraging such development by correlating and coordinating efforts in this field, and stimulating the interest of private and public organizations and individuals in the problem. Private development of processes is being encouraged, and a few industrial firms have

undertaken independent research in this field during the past year, and the Department has received wholehearted cooperation from several organizations now engaged in these activities.

At the beginning of the program, the cost of converting sea water to fresh water by the best processes in use was about \$400 to \$500 an acre-foot. Accordingly, an arbitrary criterion was set for the initial phase of the program, for water for municipal and industrial purposes. This goal was \$125 per acre-foot—38 cents per 1,000 gallons—which was believed, on the basis of available data, to represent about the maximum that could be borne by these types of use. It was thought that if this goal could be approached during the initial phase, further reduction might be possible in a second phase.

The work accomplished so far indicates that attainment of the first goal of obtaining fresh water from sea water at a price which municipal users and some industries might pay, and the conversion of brackish water to irrigation uses, seems to be in sight although much work will be necessary before either can be brought to realization. The task of converting sea water for irrigation is more difficult but the researches continually produce new ideas and one of these may well point a way to its attainment.

Some of the investigations initiated earlier in this program have been completed and the results described. Other research investigations are being continued and many new research and development problems are being studied. All of these are described in some detail in the third annual report covering the program.

The report indicates that during the past year 39 proposals for research were evaluated formally and several dozen additional suggestions were considered. Eleven new research and development contracts were let. Work under 11 other research contracts initiated earlier was completed with affirmative results definitely justifying further research in 8. Two processes give promise of converting sea water at less than half present costs, and one for brackish water has reached pilot-plant stage and is being field tested. Information has been obtained and exchanged on developments in this field in the United States and more than a dozen other countries from Europe to Australia.

I am advised that progress during the year has demonstrated the need for a central governmental program of this nature having no interest in the development of one industrial process over another. Few industrial firms appear to feel justified in carrying the development of saline water conversion equipment further than improvements in present equipment. However, to reach the ultimate objective of the program—demineralized water in large quantities at a small fraction of present costs for the general economic benefit—more than minor improvements in processes are needed. The governmental program would assure that research and development would be continued persistently, in-

cluding minor local improvements in processes, until in time, low-cost water in large quantities was made available to the general public.

The report indicates that, during 1954, new light has also been cast upon the direction which the program should take in the development of unconventional energy sources for demineralization. The energy required for extracting 1 acre-foot of fresh water from sea water is about 900 kilowatt-hours. From research under the program, it has been estimated that the minimum that might be reached in practice would probably be 4 to 5 times that quantity. Thus the energy cost alone would not be less than about \$20 per acre-foot at 5 mills per kilowatt-hour. The amortized cost of equipment and the cost of operation would probably at least equal the energy cost. This is for sea water, and the costs are generally less for brackish waters. Thus it becomes important that nonconventional low-cost energy such as solar energy, for example, be explored in connection with process development and use.

I am pleased to hear that the nine eminent members of educational, scientific, and industrial organizations who, at the beginning of the program, agreed to serve as advisers to the Secretary on broad policy matters, are all continuing to serve in this capacity and that they have provided some very substantial advice and assistance.

Lowering Our Tariffs on Japanese Goods

EXTENSION OF REMARKS

OF

HON. DANIEL A. REED

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

Thursday, January 13, 1955

Mr. REED of New York. Mr. Speaker, one of the reasons why the proposed extension of the President's authority to enter into trade agreements assumes such vital importance to the American people at this time is the pending agreement with Japan.

Trade negotiations with Japan are expected to get underway shortly. They may have already begun. Included among the hundreds of items with respect to which tariff concessions will be considered are the products of many American industries which are already feeling the devastating effect of foreign competition. These include chemicals, china and porcelainware, glassware, optical instruments, machinery, fish, and a wide variety of textile products. There are many others.

I believe that up-to-date information on the negotiations with Japan is essential to our enlightened understanding of the issues presented by current trade legislation. For that reason, I am presenting for the information of each member a list of the items announced by the State Department to be subject to negotiation with Japan:

LIST OF ARTICLES IMPORTED INTO THE UNITED STATES PROPOSED FOR CONSIDERATION IN TRADE AGREEMENT NEGOTIATIONS WITH JAPAN AND OTHER COUNTRIES

TARIFF ACT OF 1930, TITLE I. DUTABLE LIST Schedule 1. Chemicals, oils, and paints

Paragraph 5: Ajinomoto and other monosodium glutamate preparations.

Paragraph 27 (a) (1) (5): Acetanilide not suitable for medicinal use alphanaphthol, aminobenzoic acid, aminonaphthol, aminophenetole, aminophenol, aminosalicylic acid, aminoanthraquinone, aniline oil, aniline salt, anthraquinone, arsanilic acid, benzaldehyde not suitable for medicinal use, benzal chloride, benzanthrone, benzidine, benzidine sulfate, benzoic acid not suitable for medicinal use, benzoquinone, benzoyl chloride, benzyl chloride, benzylethylaniline, beta-naphthol not suitable for medicinal use, bromobenzene, chlorobenzene, chlorophthalic acid, cinnamic acid, cumidine, dehydrothiolutidine, diaminostilbene, dianisidine, dichlorophthalic acid, dimethyl aniline, dimethylaminophenol, dimethylphenylbenzylammonium hydroxide, dimethylphenylenediamine, dinitrobenzene, dinitrochlorobenzene, dinitronaphthalene, dinitrophenol, dinitrotoluene, dihydroxynaphthalene, diphenylamine, hydroxyphenylarsinic acid, metanilic acid, methylanthraquinone, naphthylamine, naphthylene-diamine, nitroaniline, nitroanthraquinone, nitrobenzaldehyde, nitrobenzene, nitronaphthalene, nitrophenol, nitrophenylenediamine, nitrosodimethylaniline, nitrotoluene, nitrotoluylenediamine, phenylenediamine, phenylhydrazine, phenyl-naphthylamine, phenylglycine, phenylglycinerthro-carboxylic acid, phthalic acid, phthalimide, quinaldine, quinoline, resorcinol not suitable for medicinal use, salicylic acid and its salts not suitable for medicinal use, sulfanilic acid, thiocarbanilide, thiosalicylic acid, tetrachlorophthalic acid, tetramethyldiaminobenzophenone, tetramethyldiaminodiphenylmethane, toluene sulfochloride, toluene sulfonamide, tribromophenol, toluidine, tolidine, tolylenediamine, xylydine, carbazole having a purity of 65 percent or more; all the foregoing products (not including phthalic anhydride, anthracene, or naphthalene) whether obtained, derived, or manufactured from coal tar or other source.

Paragraph 27 (a) (3) (5): All products (except products chiefly used as assistants in preparing or finishing textiles and except azo salts, fast-color bases, fast-color salts, and naphthol AS and its derivatives), by whatever name known, which are similar to any of the products provided for in paragraph 27 or 1651, Tariff Act of 1930, and which are obtained, derived, or manufactured in whole or in part from any of the products provided for in either of said paragraphs.

Paragraph 27 (a) (4) (5): All mixtures, including solutions, consisting in whole or in part of any of the products provided for in subdivision (1), (2), or (3) of paragraph 27 (a), Tariff Act of 1930 (except sheep dip and medicinal soaps, and except products chiefly use as assistants in preparing or finishing textiles).

Paragraph 41: Agar agar.

Paragraph 47: Licorice, extracts of, in pastes, rolls, or other forms.

Paragraph 51: Camphor, natural (crude and refined) and synthetic.

Paragraph 51: Menthol.

Paragraph 58: Oils, distilled or essential, not mixed or compounded with or containing alcohol: Sandalwood.

Paragraph 60: Saffrol, not mixed or compounded, not containing more than 10 percent of alcohol, not marketable as cosmetics, perfumery, or toilet preparations, and not specially provided for.

Paragraph 66: Pigments, whether dry, mixed, or ground in or mixed with water,

84TH CONGRESS
1ST SESSION

H. R. 2104

IN THE HOUSE OF REPRESENTATIVES

JANUARY 13, 1955

Mr. Bow introduced the following bill; which was referred to the Committee on Interior and Insular Affairs

A BILL

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That the Act of July 3, 1952 (66 Stat. 328, 42 U. S. C.,
4 secs. 1951 ff.), is hereby amended as follows:

5 (1) By modifying subsection (a) of section 2 of said
6 Act so as to read: "by means of research grants and con-
7 tracts as set forth in subsection (d) of this section and by
8 use of the facilities of existing Federal scientific laboratories
9 within the monetary limits set forth in section 8 of this Act,
10 to conduct research and technical development work, to

1 make careful engineering studies to ascertain the lowest in-
2 vestment and operating costs, and to determine the best
3 plant designs and conditions of operation”.

4 (2) By modifying section 8 of said Act so as to read:
5 “There are authorized to be appropriated such sums, but not
6 more than \$6,000,000 in all, as may be required (a) to
7 carry out the provisions of this Act during the fiscal years
8 1953 to 1963, inclusive, (b) to finance for not more than
9 two years beyond the end of said period such grants, con-
10 tracts, cooperative agreements, and studies as may thereto-
11 fore have been undertaken pursuant to this Act, and (c) dur-
12 ing the same additional period plus one more year, to corre-
13 late, coordinate, and round out the results of studies and
14 research undertaken pursuant to this Act. Departmental
15 expenses for direction of the program authorized by this
16 Act and for the correlation and coordination of information
17 as provided in subsection (d) of its section 2 shall not exceed
18 \$1,500,000, and not more than \$500,000 shall be expended
19 for research and development in Federal laboratories. Both
20 of said sums shall be scheduled for expenditure in equal
21 annual amounts insofar as is practicable.”

A BILL

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

By Mr. Bow

JANUARY 13, 1955

Referred to the Committee on Interior and Insular
Affairs

of Labor to make a study of the wage differentials now existing. We need to know the possible effect on wage scales. We need to know the psychological effect of the discrimination that now exists. We need to know how effective State legislation has been in dealing with the problem. We need to know many such things. You will probably be interested to know that at no point do I find that people do not want equal pay. They all want it; they are all in favor of it. The problem is how it might be brought about.

MORAL REARMAMENT CONFERENCE

(Mr. YOUNGER asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. YOUNGER. Mr. Speaker, I want to join my colleagues in endorsing the plan of our colleague the gentleman from California [Mr. SHEPPARD] in regard to the moral rearmament plays. I have attended some of them and cannot speak too highly of their appeal from a domestic standpoint nor their impact as advocating an ideology capable of winning converts from communism.

COTTON ACREAGE ALLOTMENT

(Mr. THOMPSON of Texas asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. THOMPSON of Texas. Mr. Speaker, I have today introduced House Joint Resolution 116, which provides:

That notwithstanding any other provision of the law within 15 days after enactment of this joint resolution, the Secretary of Agriculture shall estimate for each State receiving a State acreage allotment for the 1955 crop of cotton the number of acres of such allotment which, on the basis of previous experience, will probably not be planted to cotton in 1955 and shall apportion to each such State an additional allotment for 1955 equivalent to the underplanting so estimated. The additional acreage required for such apportionment shall be in addition to the national acreage allotment and the production from such acreage shall be in addition to the national marketing quota. Such additional State acreage allotments shall be apportioned to counties within the respective States for the purpose of correcting inequities and preventing hardships especially on family operated farms where the 1955 cotton allotment heretofore determined has resulted in a reduction in cotton acreage on such farm below that required for an economic farming unit.

I believe this resolution, if properly administered, will provide sufficient acreage to ease the worst of our hardship cases. It places on the State and county ASC committees the responsibility for increased allotments on the basis of individual merit. It does not increase the acreage in counties that have not been adversely affected.

In presenting this resolution to the Congress I have stressed that the conditions in much of my district are extremely serious and if permitted to continue could result in a growing depression. Conditions are uncomfortably similar to those which led to the great

depression of 1929. The stock market is high and industry is booming, but farmers are facing disaster. We cannot afford to take any further chances.

My resolution will correct the present situation, but it still remains for us to find a permanent method of acreage allotment by which a small farmer will not be cut below the minimum required for an economic farming unit. This should be permanent legislation rather than a temporary expedient, and I expect to introduce it as soon as this emergency resolution has been disposed of.

MORAL REARMAMENT CONFERENCE

(Mr. JENSEN asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. JENSEN. Mr. Speaker, I desire to join with my colleagues who have spoken in behalf of the Moral Rearmament Conference which is coming to a close at the Shoreham Hotel in Washington, D. C. It was my pleasure and privilege to attend one of the conferences. I saw there people from many nations of the world who have come here with but one purpose in mind and that is to help in God's good work all over the world in the hope that finally every nation on earth will join under the flag of God to bring peace and good will among men everywhere.

I want to compliment them for their good work, and I wish them godspeed in all their doings.

INCREASING OUR WATER SUPPLIES

(Mr. BOW (at the request of Mr. COON) was given permission to extend his remarks in the RECORD at this point.)

Mr. BOW. Mr. Speaker, I am introducing today a measure to continue and strengthen the important studies now in progress on the conversion of saline waters as a means of increasing our water supplies.

Due to our growing populations, expanding industry, agriculture, and new technology, the demand for ever-increasing quantities of fresh water has grown tremendously. This expansion is causing our water resources to be gradually exhausted or contaminated, or both. In many instances, such as my State of Ohio, existing water supplies have been supplemented by new wells, which tend to lower the water table in certain areas. In other places new reservoirs have had to be constructed and water transported over ever-greater distances.

A new attack on this problem was initiated by the Congress when it enacted Public Law 448, with which I took an active part. Under the act, processes are being developed for the removal of dissolved salts, both from the inexhaustible water of the oceans and from brackish inland water, which is becoming increasingly saline to a point where, in many cases, it cannot be safely used.

The objective of the saline-water conversion program is to develop economically feasible processes for producing from sea water, or from other saline

waters, water of a quality suitable for agriculture, industrial, municipal, and other beneficial consumptive uses. The Department of the Interior accomplishes this program by conducting scientific research and development by means of federally financed grants and contracts and stimulating the interest of private and public organizations and individuals in the problem.

By amendments which I introduced in 1952, the act provides that most of the research and development be carried out by private industrial and scientific organizations. It is gratifying to learn of the splendid cooperation exhibited between industry, other organizations and the saline-water-conversion program. One of the firms in my district, the Griscom-Russell Co., of Massillon, Ohio, has been serving the Department in a consulting capacity. Supporting evidence of such cooperation as this, progress made during the past year, and the excellent work that is being done, may be found in the third annual report recently released by the Secretary of the Interior.

Much of the initial research on process development consisted of small-scale laboratory work. When certain processes developed in the laboratory show sufficient promise, field tests became necessary in order to determine feasibility on a large-scale basis. Such tests, on a pilot-plant scale, are a necessary part of any process development and are much more costly than the original research.

The difference between present costs of converting sea water and the program objective costs is still large. The work completed to date, however, indicates that attainment of the first goal of winning fresh water from sea water at a price which municipal users and some industries might afford, and the conversion of brackish water to irrigation uses, seems to be in sight. The need to reduce the cost still further points out the fact that nonconventional low-cost energy such as solar energy must be explored in connection with process development and use.

In briefly summarizing the work of the program for 1954, I would like to mention the following typical investigations.

Of several methods showing promise, the critical pressure process is of interest. Essentially this process of extracting fresh water from sea water is similar to the evaporation process. However, since the conversion is accomplished at or near the critical state of water the net energy requirements for the process are quite small.

At one time this process was investigated by the Swedish scientists Baltzar von Platen, A. G. Olander, and Halvard Liander. In a mission of foreign aid in reverse, in which the United States benefited considerably, the director of the saline water-conversion program and two other scientists visited these men in Stockholm, Sweden, during 1954.

On the basis of their findings a new research and development contract amounting to some \$70,000 has been negotiated for development of the process.

Nuclear Development Associates, of White Plains, N. Y., assisted by the Griscom-Russell Co., of Massillon, is conducted this research and development work.

Other firms and organizations which are engaged in research or development of similar processes or membranes are Rohm & Haas Co.; Permutit Co., of the United States; and Permutit, Ltd., of England; Gulf Research and Development, of Pittsburgh; Netherlands Central Technical Institute; British National Physical Laboratory; Farbenfabriken Bayer Co., of Leverkusen, Germany; Imperial College, London, and the National Chemical Research Laboratory, of the Union of South Africa, all of which have cooperated in supplying information on their research.

Other processes under development involve an ion transfer membrane demineralizer which is undergoing field tests in Arizona and South Dakota; various aspects of the vapor compressor distillation process some of which will reach field testing stage next year; solar distillation makes use of the sun's energy; and the use of such processes as osmosis, solvent extraction, separation by freezing and ultrasonics.

Increased attention is being focused on the potential use of demineralized water for industrial purposes and a survey of such uses is being initiated.

The program is well conceived. To permit continuity, and the attainment of its goals, extension of time and a slightly increased budget are needed, and a small amount of research in existing Federal laboratories is needed for confirming results. This is the purpose of the measure I have introduced today. I trust that it may have early and favorable consideration by the Committee on Interior and Insular Affairs.

MRA AND SPIRITUALIZED INDIVIDUALISM

(Mr. SIEMINSKI asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. SIEMINSKI. Mr. Speaker, some say there is nothing new to moral rearmament. Like prose, man has been using it on and off all his life. It is commonsense.

Others say that MRA can harmonize the innerman with the outer, that it can attune man on the offbeat with man on the downbeat. It can do the same for citizens, communities, and continents, the one with the other. Thus, MRA is a catalyzer. It fuses harmony by consent and example, not by fiat, force or extermination.

Like the sun and the moon, the stars and the sky, some say that moral principles have always been with us. Successful navigators use them. Shoals await those who discount them. Love, purity, honesty, and unselfishness harmonize man. Their opposites tear asunder and destroy. The degree of division in the world is in proportion to the hatred, impurity, dishonesty, and greed that is in the world.

Moral rearmament, it appears, holds that man can, with God's guidance, chart a course of conduct for himself, with men, nations, and continents that will allow each to live in confidence while awaiting the disclosure of His next mystery. Love, honesty, purity, and unselfishness are the absolutes by which men can thus move.

The above is what I have discerned about moral rearmament since I came in contact with it a few years ago here in Washington while serving in the Congress. Mr. Speaker, I wish it well.

Listed now is a card I found on a chair the other evening at the Shoreham Hotel where I saw one of Peter Howard's MRA plays called *We Are Tomorrow*.

The card tells a story:

You are cordially invited to performances of Peter Howard's stage plays.

We Are Tomorrow, Tuesday, January 11—Our decisions of today and the world they will build.

The Dictator's Slippers, Wednesday, January 12, behind the scenes behind the Iron Curtain.

The Real News, Thursday, January 13—The struggle for power in a newspaper office.

The Man With the Key, Friday, January 14—Inside drama of a modern international conference.

Presented in connection with the World Assembly for Moral Re-Armament each evening at 8:30, Shoreham Hotel, main ballroom.

For reserved seats, without charge: Moral rearmament, Shoreham Hotel, Adams 4-0700.

"I wish every Member of the House and Senate would see that play. It is a most inspiring production." (Senator CASE of South Dakota, speaking of one of the MRA plays on the Senate floor, January 5, when 400 delegates to the MRA World Assembly were welcomed by Senators GEORGE, WILEY, SMITH of New Jersey, CASE and WATKINS.)

From the World Assembly:

"Moral rearmament has the answer to the most burning questions of the day. I know of no stronger unifying force in the world." (Ole Bjorn Kraft, former Foreign Minister of Denmark and Chairman of NATO.)

"What Abraham Lincoln did for America, moral rearmament is going for Africa." (The Tolon Na, Member of Parliament; political leader of 1½ million in the Gold Coast.)

"Military defense alone will never be adequate to meet Communist aggression. Whatever our economic or defense programs, we must have this ideological backbone of MRA." (Senator Takeshi Togano, member of the executive, right wing Socialist Party, Japan.)

CONDUCT ON THE FLOOR OF THE HOUSE OF REPRESENTATIVES

(Mr. DONDERO asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. DONDERO. Mr. Speaker, I wish to associate myself with the remarks made by my colleagues on both sides of the aisle regarding moral rearmament.

I now wish to call the attention of the House to another subject. Twice during the last 22 years, through the graciousness of the Speaker and the House, I was privileged to address this body on the rules governing our conduct on this floor. It has been 8 years since such remarks were made the last

time. During that time more than a majority of the House are new Members.

We all make mistakes on this floor. Therefore, I propose in the very near future when opportunity presents itself to address the House again on the rules of conduct which govern us toward our colleagues and in our legislative duties on this floor.

THE LATE DR. HENRY WILSON TEMPLE

The SPEAKER. The Chair recognizes the gentleman from Pennsylvania [Mr. MORGAN].

Mr. MORGAN. Mr. Speaker, it is my sad duty to announce to the House the passing of Dr. Henry Wilson Temple, a former Member of the House, at his home in Washington, Pa., on January 11, 1955. Dr. Temple had been ill for several months and was in his 91st year.

He was a retired minister, Congressman, and college professor. He was born March 31, 1864, at Belle Centre, Ohio, and was the son of John B. and Martha Jameson Temple. He attended the public schools in his hometown and then entered Geneva College, from which he graduated in 1883 at the age of 19. He entered Allegheny Theological Seminary in Pittsburgh and graduated in 1887. Four years later he accepted a call to the First United Presbyterian Church in Washington, Pa.

In 1898 Dr. Temple was elected professor of political science at Washington and Jefferson College in Washington, Pa. In 1905 he gave up his pastorate to devote his entire time to college work.

Dr. Temple was elected to Congress from the district, which I now represent, on the Bull Moose ticket in 1912. He served in the House of Representatives for 20 years. He was a member of the Foreign Affairs Committee and established himself as the foremost authority in Congress on international affairs.

He was defeated for Congress in the Democratic landslide in 1932 and did not seek public office again. He returned to his teaching at Washington and Jefferson College and taught until he retired in 1948 with the title of professor emeritus.

Dr. Temple never lost his interest in Congress or in national and international affairs. He was known as Washington's "grand old man" and was beloved by all.

His passing is a distinct loss to Washington County and to the entire State of Pennsylvania.

I join his many friends in extending to his survivors sincere and heartfelt sympathy.

Mr. MARTIN. Mr. Speaker, will the gentleman yield?

Mr. MORGAN. I yield to the gentleman from Massachusetts.

Mr. MARTIN. I yield to the gentleman from Pennsylvania in expressing my regret at the death of Dr. Temple. It was my privilege to serve with Dr. Temple for a number of years on the Committee on Foreign Affairs. He was a great scholar, a student of foreign affairs, and a man of outstanding ability.

84TH CONGRESS
1ST SESSION

S. 516

IN THE SENATE OF THE UNITED STATES

JANUARY 18, 1955

Mr. CASE of South Dakota introduced the following bill; which was read twice
and referred to the Committee on Interior and Insular Affairs

A BILL

To amend the Act of July 3, 1952, relating to research in the
development and utilization of saline waters.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C.,
4 secs. 1951 ff.), is hereby amended as follows:

5 (1) By modifying subsection (a) of section 2 of said
6 Act so as to read: "by means of research grants and contracts
7 as set forth in subsection (d) of this section and by use of
8 the facilities of existing Federal scientific laboratories within
9 the monetary limits set forth in section 8 of this Act, to
10 conduct research and technical development work, to make
11 careful engineering studies to ascertain the lowest invest-

1 ment and operating costs, and to determine the best plant
2 designs and conditions of operation”.

3 (2) By modifying section 8 of said Act so as to read:
4 “There are authorized to be appropriated such sums, but
5 not more than \$6,000,000 in all, as may be required (a)
6 to carry out the provisions of this Act during the fiscal years
7 1953 to 1963, inclusive, (b) to finance for not more than
8 two years beyond the end of said period such grants, con-
9 tracts, cooperative agreements, and studies as may thereto-
10 fore have been undertaken pursuant to this Act, and (c)
11 during the same additional period plus one more year, to
12 correlate, coordinate, and round out the results of studies
13 and research undertaken pursuant to this Act. Departmental
14 expenses for direction of the program authorized by this Act
15 and for the correlation and coordination of information as
16 provided in subsection (d) of its section 2 shall not exceed
17 \$1,500,000, and not more than \$500,000 shall be expended
18 for research and development in Federal laboratories. Both
19 of said sums shall be scheduled for expenditure in equal
20 annual amounts insofar as is practicable.”

A BILL

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

By Mr. CASE of South Dakota

JANUARY 18, 1955

Read twice and referred to the Committee on Interior and Insular Affairs

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

Issued February 25, 1955
For actions of February 24, 1955
84th-1st, No. 34

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Economic report.....4	Personnel.....5,10	Textiles.....12
Education.....8	Purchasing.....20	Trade agreements.....13
Federal aid.....8	Research.....2	Water research.....2
Food surplus.....13	Rice.....11,16	Wheat.....7
	Roads.....3	Wool.....13

HIGHLIGHTS: House debated tax bill. House subcommittee reported bill to amend and extend salt-water research program. Rep. Anfuso urged wheat shipments for relief behind Iron Curtain.

HOUSE

1. TAXATION. Began debate on H. R. 4259, to extend for 1 year the existing corporate normal-tax rate and certain excise-tax rates, and to provide a 20 credit against the individual income tax for each personal exemption (pp. 1704-39).
2. SALT-WATER RESEARCH. The Subcommittee on Irrigation and Reclamation reported to the Interior and Insular Affairs Committee H. R. 2126, to amend and extend the program of research in the development and utilization of saline water (p. D131).
3. ROADS. Rejected, 87 to 131, a motion by Rep. Cannon to transfer H. R. 4260 and 4261, bills to create a Federal highway corporation for financing a national system of interstate highways, from the Public Works Committee to the Appropriations Committee (p. 1701).
4. ECONOMIC REPORT. The Joint Committee on the Economic Report was granted an extension until Mar. 15 for filing its final report (p. 1701).
5. PERSONNEL. Passed as reported H. R. 4048, making recommendations to the States for legislation to permit and assist Federal personnel and their families to vote (pp. 1739-42).
6. PUBLIC LANDS. Received the Interior Department's report showing tabulations by the Bureau of Land Management on the withdrawals and restorations of land made during the period Jan. 1 through Dec. 31, 1954 (p. 1744).

ITEMS IN APPENDIX

7. WHEAT. Rep. Anfuso urged sending surplus wheat to feed starving people behind the Iron Curtain, and inserted his letter to the President and a New York Daily News editorial in favor of this proposal (pp. A1231-2).
8. FEDERAL AID; EDUCATION. Rep. Lane inserted his recent radio address urging Federal aid to States for school construction and stating that there are many examples of Federal-aid programs going forward without Federal control, such as aid to land-grant colleges, the school-lunch program, the GI bill of rights, etc. (pp. A1199-200).
9. SOIL CONSERVATION. Extension of remarks of Rep. Gathings commending the work of the Arkansas soil conservation districts (p. A1202).
Extension of remarks of Rep. Reuss commending the soil-conservation program and including a Wisc. Assn. of Soil Conservation District Supervisors resolution opposing any change of organization of the Soil Conservation Service (p. A1222).
10. PERSONNEL. Rep. Lane inserted his statement endorsing legislation providing for an "adequate and justifiable increase in pay for our postal and Federal employees" (pp. A1202-3).
11. RICE. Extension of remarks of Rep. Gathings stating that Arkansas produces more than 1.4 billion pounds of rice each year, and including a newspaper article which he says "gives one of the best pictures of the Midsouth rice production, as well as an indication of the difficulties encountered by these growers under the 1955 rice-acreage allotment program" (p. A1207).
12. TEXTILES. Rep. Lane inserted a newspaper article including "necessary steps" to be taken to retain the textile industries in New England (p. A1206).
13. TRADE AGREEMENTS. Extension of remarks of Rep. Roosevelt in support of his bill, H. R. 4304, to provide for an annual report of the President on the effect of the Trade Agreements Extension Act of 1955 upon labor, employment, and industrial activity in the U. S. (pp. A1207-8).
Rep. Kearney inserted a Washington Post and Times Herald article opposing Japanese imports of wool handwear and lowering of tariffs, and stating that John L. Lewis is urging that unemployment in the coal industry be met by distributing food surpluses to American miners instead of foreign governments (p. A1208).
Rep. Kearney inserted a Mohawk Carpet Mills letter opposing H. R. 1, the trade agreements extension bill, and any further reductions in tariffs on imported carpet (pp. A1209-10).
Rep. Karsten inserted a St. Louis Post-Dispatch editorial, "Rayburn Saves the Trade Act," urging that the Senate make a "concerted effort... to remove the crippling clauses already in the law" (pp. A1224-5).
Extension of remarks of Rep. Gwinn discussing reasons why he voted against the reciprocal trade bill (pp. A1225-6).
14. COTTON. Rep. Jones (Mo.) inserted a Mo. General Assembly resolution urging Congress to intensify the fight against the pink bollworm (p. A1220).

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

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84th-1st, No. 37

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Dairy industry.....20	Pay increase.....12	Water research.....4
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HIGHLIGHTS: Senate committee ordered reported pay raise bill. Senate committee ordered reported tax bill after deleting personal income tax deduction. House Rules Committee cleared bill to repeal ACP tie-in with acreage allotments. House committee ordered reported CCC fungible goods claims bill. House committee ordered reported bill amending and extending salt water research program. Sen. Byrd urged USDA to reject strip mining permit in Cumberland National Forest.

HOUSE

1. SOIL CONSERVATION. The Rules Committee reported a resolution for consideration of H. R. 1573, to repeal Sec. 348 of the Agricultural Adjustment Act of 1938, which makes ACP payments contingent upon compliance with acreage allotments on basic crops (p. 1909).
2. FUNGIBLE GOODS. The Agriculture Committee ordered reported H. R. 1831, to amend the CCC Charter Act in order to protect innocent purchasers of fungible goods converted by warehousemen from CCC claims (pp. D148-9).
3. HOUSING LOANS. The Rules Committee reported a resolution for consideration of H. J. Res. 202, to increase by \$1.5 billion the mortgage insurance authority of the Federal Housing Administration (p. 1909).
4. SALT-WATER RESEARCH. The Interior and Insular Affairs Committee ordered reported H. R. 2126, to authorize additional funds for the Interior Department for research in the development and utilization of saline waters, to extend the period of this program, etc. (p. D149).
5. CREDIT UNIONS. Rep. Patman inserted several Texas Credit Union articles outlining the growth of credit unions during 1954 (pp. 1913-4).

C. REORGANIZATION. In its report on personnel (H. Doc. 89) the Hoover Commission makes recommendations as follows:

"Recommendation No. 1

"(a) Career administrators, as rapidly as possible, should be relieved by noncareer executives of responsibility for advocacy or defense of policies and programs and should be kept out of direct participation in political controversies. This recommendation is in no way intended to restrict Congress in obtaining information from any employee of the Government.

"(b) Additional competent noncareer executives should be worked into management organization at the departmental level to help carry the workload, assist the secretaries and assistant secretaries in improving their control over and grasp of departmental business, and take over the political tasks formerly handled by many career administrators. Political appointees should not be placed in the line of command below career administrators. Obviously, such appointments undermine the line of command and make the position of career administrator untenable."

"Recommendation No 2

"We recommend that the President designate the positions which should be in the noncareer category and that he use the following criteria to determine positions which should be in this category:

"(a) All positions filled by Presidential appointment, with or without confirmation by the Senate;²

"(b) All positions having vested in them statutory authority or Executive delegations of authority requiring the incumbents to make final decisions in the establishment of governing policies, programs, objectives and in the enunciation of principles which will control the action of subordinates in the implementation of the foregoing;

"(c) All positions, the duties of which require the incumbents to act publicly in advocating new policies and in justifying or defending the governing policies or the basic principles or philosophy which controls their department or agency policies. Such duties would include direct participation with, or representation of noncareer executives in public debate, evaluative discussions, and justifications of departmental policies, programs, or activities;

"(d) Most positions of a personal and confidential nature, such as personal aids, confidential secretaries, and personal chauffeurs. Noncareer executives may, of course, continue to employ career people in such positions.

"The Commission believes that the use of these recommended criteria together with the concept of concentrating political responsibility at the departmental level would do much to lessen the difficulties involved in this complex problem.

"The Commission also believes that some confusion in the personnel administration could be eliminated by a redefinition of the classes of the positions exempted from the competitive civil service which would clearly distinguish the positions exempted provisionally because of testing difficulties or manpower shortages from those exempted indefinitely because they are political or confidential in nature.

² Except certain positions, discussed later, which the Commission recommends be removed from either Senate confirmation or Presidential appointment or both.

March 7, 1955

House

-2-

4. SALT-WATER RESEARCH. The Interior and Insular Affairs Committee reported without amendment H. R. 2126, to authorize additional funds for the Interior Department for research in the development and utilization of saline waters, to extend the period of this program, etc. (H. Rept. 89)(p. 2063).
5. PURCHASING. Received the President's message recommending a 2-year extension of the Renegotiation Act of 1951, which provides for the renegotiation of defense contracts (H. Doc. 101); to Ways and Means Committee (p. 2045).
6. DAIRY PRODUCTS. Rep. Laird spoke in favor of his bill, H. R. 675, providing for a 2-year continuation of the school-milk program; claimed that a recent survey shows a 5 percent per capita increase in butter consumption over last year, and that fluid milk and cheese consumption "showed a marked increase"; and urged promotion of sale and use of dairy products (p. 2043).
7. FAMILY-SIZE FARMS. Rep. Patman spoke in favor of "a program that provides for family farm supports... and that will not allow the rich, vast, factory farmers to enrich themselves further at Government and the taxpayers' expense" (pp. 2052-7).
8. PAPERWORK. Rep. Patman questioned the Hoover Commission's report on Government Paperwork and stated, "We should not have these Hoover Commissions", and that Congress should look into the matters which the Hoover Commission has been studying (pp. 2049-52).
9. RUBBER. Rep. Patman inserted his statement made last year before the Rules Committee opposing sale of Government-owned synthetic-rubber plants (pp. 2057-8).
10. CREDIT UNIONS. Rep. Patman claimed that the growth of credit unions has made it possible for borrowers to avoid excessive borrowing costs, and he inserted a newspaper article explaining how to start a credit union (pp. 2058-9).
11. TRANSPORTATION. Rep. Tollefson spoke in favor of the Cargo Preference Act, which provides that not less than 50 percent of Government-sponsored cargos shall be carried in American-flag vessels, if such ships are available at reasonable rates (pp. 2059-61).
12. RECLAMATION; ELECTRIFICATION; WHEAT ALLOTMENTS. Received an Okla. Legislature resolution favoring authorization of the Washita Basin project, and Mont. Legislature memorials favoring construction of the Yellowtail and Libby dams and increasing acreage allotments for Montana's premium high protein milling wheat (p. 2065).

SENATE

13. MONOPOLIES. The Senate Rules and Administration Committee ordered reported without amendment S. Res. 61, authorizing expenditure of \$250,000 by the Judiciary Committee for a study of the antitrust laws and their administration, interpretation, and effect (p. D170).

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

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March 7, 1955

84th-1st, No. 41

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

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HIGHLIGHTS (see page 6)

HOUSE

1. APPROPRIATIONS. Received from the President a draft of proposed legislative language to continue available the balances of appropriations made during the calendar year 1954 under ACP for emergency wind erosion control measures (H. Doc. 102); to Appropriations Committee (p. 2063).
Received from the President a proposed supplemental appropriation to pay claims for damages, audited claims, and judgments against the U. S. in the amount of \$6,269,842, together with such amounts necessary to pay indefinite interests, costs, etc. (H. Doc. 104); to Appropriations Committee (p. 2063).
2. LIVESTOCK LOANS; LU LANDS. Received from this Department proposed bills to continue the emergency livestock-loan program and to dispose of title III Bankhead-Jones Farm Tenant Act lands; to Agriculture Committee (p. 2063).
3. SCHOOL LUNCH. Received GAO's audit report on the operations of the national school-lunch program (p. 2063).

AMENDING THE ACT OF JULY 3, 1952, RELATING TO RE-
SEARCH IN THE DEVELOPMENT AND UTILIZATION OF
SALINE WATERS

MARCH 7, 1955.—Committed to the Committee of the Whole House on the State
of the Union and ordered to be printed

Mr. ENGLE, from the Committee on Interior and Insular Affairs,
submitted the following

R E P O R T

[To accompany H. R. 2126]

The Committee on Interior and Insular Affairs, to whom was re-
ferred the bill (H. R. 2126) to amend the act of July 3, 1952, relating to
research in the development and utilization of saline waters, having
considered the same, report favorably thereon without amendment and
recommend that the bill do pass.

PURPOSE

This bill would amend the Saline Water Act of 1952 to provide
for uninterrupted continuation of the saline water conversion research
program. An identical bill was introduced by Representative Bow,
of Ohio.

The act of July 3, 1952, known as the Saline Water Act of 1952,
authorized the appropriation of \$2 million to carry on a 5-year re-
search program with the objective of developing economically feasible
processes for converting sea water and other saline waters to fresh
water of a quality suitable for agricultural, industrial, municipal, and
other beneficial uses.

Enactment of this bill would modify the basic act by extending
the period of the research program, by increasing the amount author-
ized to be appropriated for conducting this research, and by per-
mitting research to be carried on to a limited extent in existing Gov-
ernment laboratories.

ACCOMPLISHMENT OF PROGRAM

This research program is accomplished under the direction of the Secretary of the Interior through (1) federally financed contracts with private scientists and engineers, educational institutions, scientific organizations, and engineering firms for conducting scientific research; (2) encouraging development of saline water conversion processes by correlating and coordinating efforts in this field; and (3) stimulating the interest of private and business organizations and individuals in the program.

The committee observes that the research program is presently being directed by a small separate organization operating in the Office of the Secretary, rather than in one of the bureaus. The committee is in agreement with this arrangement. A separate organization in the Office of the Secretary has the advantage of contributions from all the agencies in the Department, including the Geological Survey, the Bureau of Reclamation, and the Bureau of Mines, and is in a better position to work with other departments of Government. This arrangement has the additional advantage of assuring that the \$500,000 provided for in this legislation for research by existing Government laboratories is used in the organizations best equipped and staffed to do the work and is not channeled into one agency alone.

NEED FOR THE PROGRAM

Continued expansion of our industries, our growing populations, and expanding agricultural production have increased tremendously the demand for large quantities of fresh water. This continued growth and expansion has placed a severe drain on our water resources in certain areas. The sources of water on which we normally rely are gradually being exhausted and, through use and reuse, the supplies derived from these sources are being contaminated. There is an urgent need, then, for finding additional fresh-water sources.

The Government research program assures that research and development investigation will continue in the development of new and untried methods of demineralization of large quantities of saline water and in improvements in present methods.

At the beginning of the program, the cost of converting sea water to fresh water by the best processes in use was estimated at about \$400 to \$500 an acre-foot. The initial cost goals for the program were set at \$125 per acre-foot for municipal water and \$40 per acre-foot for irrigation water on the basis that these amounts represented about the maximum that could be borne by these types of use. Although considerable work remains to be done before these initial goals are fully realized, they are being approached and it is believed they can be reached and lowered if the research is continued. In other words, the results to date indicate that the conversion of sea water to fresh water at a price which municipal users and some industries might pay and the conversion of brackish water for irrigation use may be in sight.

Recent results have indicated that no single process will provide fresh water for all purposes at all locations and under all circumstances. Thus, it is desirable that several different principles, processes, and combinations of processes be investigated and developed concur-

rently. In addition, it is becoming increasingly apparent that as the cost of energy is a limiting factor in any process, nonconventional low-cost energy must be investigated in connection with process development and use.

Testimony presented to the committee makes it clear that the benefits from successful development of low-cost saline water conversion methods will be felt in all parts of the Nation as well as other parts of the world.

NEED FOR AMENDING EXISTING LAW

Under the provisions of the Saline Water Act of 1952, all work undertaken pursuant to that act must be completed prior to July 15, 1957. This includes not only research activities and field tests under contract but also all reports thereon and the correlation and coordination of all data. Under the existing law, it would be necessary to terminate most active research contracting by about December 1955 to permit completion of the work under the contract and final reporting of the results and conclusions by the deadline of July 1957. Unless the program is extended, it would be terminated just at the time when the need for advance research and development of promising processes is expected to be paramount.

To permit uninterrupted continuation of the program and the attainment of the goals which are in sight, an extension of time is desirable. The results obtained to date are sufficiently encouraging to indicate that if the activity is given sufficient time, economic processes for the treatment of sea water and brackish water will be developed. Unless assurance can be given to the private firms and research organizations who are serving or who will serve the program as contractors, that promising studies will be carried to completion, we will have difficulty achieving worthwhile results, even during the remainder of the period under present law.

In addition to the need for assuring uninterrupted continuation of the program, there has developed a need for using existing Federal scientific facilities to accomplish a limited amount of technical assistance. This cannot be done under existing law. Several individual scientists have had ideas on processes worthy of exploratory research but did not have laboratory facilities available. Many would be agreeable to having research carried out at a Government laboratory, but under existing law there is no authority to utilize such laboratories. Also, Government scientists in some cases have worthwhile research to propose which can best be done in their own laboratories. Probably the most important need for this authority is for using the Government laboratory in making unbiased comparisons of processes and in confirmation of research results. In some cases Federal scientific organizations offer the only satisfactory personnel and facilities to conduct certain investigations.

Initially, most of the research and development on processes has been on a relatively small-scale laboratory basis and only nominal expenditures have been required. Much of this exploratory research needs to be continued. However, as individual processes show sufficient promise, pilot plants or field tests should be undertaken. Such tests are essential in order to obtain reliable cost estimates and information on the durability of the unit, production capacity, power requirements, etc. Development work, including field tests of this type, is more costly than laboratory investigations.

ANALYSIS OF THE LEGISLATION

This bill would provide for uninterrupted continuation of the saline water-research program and would permit the officials in charge of the program to have the advantage of a limited amount of technical assistance from existing Federal scientific facilities. Section 2 (a) of the act of July 3, 1952, would be amended to permit use of the facilities of existing Federal scientific laboratories.

Section 8 of said act would be amended to raise the limit of funds authorized to be appropriated from \$2 million to \$6 million. This amount includes the funds already expended since the program was initiated in 1952. Of this \$6 million amount, not more than \$1,500,000 could be expended for the direction of the program and for the correlation and coordination of the studies and information and not more than \$500,000 could be expended for research and development in Federal laboratories. Section 8 would also be amended to extend the program through fiscal year 1963 and provide for an additional year for correlating and coordinating the results, studies, and research undertaken under the program.

REPORT OF THE DEPARTMENT

The report of the Department of the Interior on this legislation recommends its enactment. The meaning of the last paragraph of the Department's report relating to clearance by the Bureau of the Budget was not clear to the committee. A clarification of this statement has been furnished the committee which indicates that the Bureau of the Budget favors the continuance of the saline water-research program. The Bureau of the Budget does not want to be committed to approving the expenditure of \$6 million over the specific period set out in the legislation, but takes the position that expenditures should be justified by the Department each year on the basis of research work proposed to be carried out during that year. The report of the Department follows:

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., February 16, 1955.

HON. CLAIR ENGLE,
Chairman, Committee on Interior and Insular Affairs,
House of Representatives, Washington 25, D. C.

MY DEAR MR. ENGLE: You have requested a report on H. R. 2126, a bill to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters.

The act of July 3, 1952 (66 Stat. 328; 42 U. S. C., 1952 edition, secs. 1951 ff.), authorized the appropriation of a total of \$2 million to enable this Department to carry on, through contracts with private scientists and engineers, educational institutions, scientific organizations, and engineering firms, a 5-year research program looking to "the development of practicable low-cost means of producing from sea water, or from other saline waters, water of a quality suitable for agricultural, industrial, municipal, and other beneficial consumptive uses * * *."

Enactment of H. R. 2126 would modify the basic act by extending the period under which operations can be conducted under it, by increasing the amount authorized to be appropriated for the conduct of these operations, and by permitting research to be carried on to a limited extent in existing Government laboratories.

It is the recommendation of this Department that H. R. 2126 be enacted.

Continued expansion of our industries, our growing populations, and expanding agricultural production have increased tremendously the demand for large quantities of fresh water. This continued growth and expansion has placed a severe drain on our water resources in certain areas. In many instances,

new reservoirs have had to be constructed and water transported over great distances, in other cases the water supply has been supplemented by new wells which have lowered the water table. The pumping of ground water for irrigation in many areas has been at rates considerably above the safe yields as estimated by the United States Geological Survey. The sources of water on which we normally rely are gradually being exhausted and, through use and reuse, the supplies derived from these sources are being contaminated. The need for finding additional fresh water sources therefore is obvious.

Results during the past year have demonstrated the need for, and usefulness of, a Government program of this nature. Most industrial firms do not feel justified in carrying on the development of saline water conversion equipment beyond certain improvements in present equipment. To accomplish the demineralization of large quantities of saline water at a fraction of the present cost will, however, require much more development of new principles and processes that improvements in present processes. The Government program assures that research and development investigations will continue both on the development of new and untried methods and on improvements in present methods.

At the beginning of the program, the cost of converting sea water to fresh water by the best processes in use was estimated at about \$400 to \$500 an acre-foot. Accordingly 2 cost goals were set for the initial 5-year phase of the program, 1 for water for municipal and similar purposes and 1 for irrigation water. (For these criteria, no distinction is made as to whether the water to be converted is sea or brackish water.) These goals were \$125 and \$40 per acre-foot (38 and 12 cents per 1,000 gallons), respectively, and they were believed, on the basis of data then available, to represent about the maximum that could be borne by these types of use. Although considerable work remains to be done before those initial goals are fully realized, they are being approached and it is believed they can be reached and lowered if the research is continued. In other words, the results to date indicate that the conversion of sea water to fresh water at a price which municipal users and some industries might pay and the conversion of saline water to irrigation uses may be in sight.

Recent results have indicated that no single process will provide fresh water for all purposes at all locations and under all circumstances. Thus it is desirable that several different principles, processes, and combinations of processes be investigated and developed concurrently. In addition, it is becoming increasingly apparent that noneconventional low-cost energy (e. g., solar, wind, geothermal energy, etc.) must be investigated in connection with process development and use.

Preliminary results obtained from one vapor compression investigation and extrapolated to large-scale operation indicate a good possibility of producing fresh water from sea water for approximately one-fourth the cost of distilling water by any process in use at present.

Preliminary estimates for a critical pressure device of large capacity likewise indicate that fresh water may be obtained from sea water at costs much below those of existing processes if 2 or 3 critical problems now under research study can be solved.

Other processes under development include an ion transfer membrane demineralizer which is undergoing field tests at the present time; various aspects of the vapor compression distillation process, some of which will reach field-testing stage next year; solar distillation, solvent extraction, freezing, osmotic processes and ultrasonics.

Initially, most of the research and development on processes has been on a relatively small-scale laboratory basis and only nominal expenditures have been required. Much of this exploratory and more or less fundamental research needs to be continued. However, as individual processes which show sufficient promise are developed in the laboratory, pilot plants or field tests become necessary. Such tests are essential in order to obtain reliable cost estimates and information on the durability of the unit, down time, production capacity, power requirements, corrosion, etc. Developmental work, including field tests of this type, is more costly than laboratory investigations.

Under the provisions of the Saline Water Act of 1952, all work undertaken pursuant to that act must be completed prior to July 15, 1957, the anniversary of the date of the first appropriation to implement it. Not only all research activities and field tests under contract but also all reports thereon and the correlation and coordination of all data must be completed by that date.

Since most research and development contracts are for a period of about a year, it would thus be necessary to terminate most active research contracting by about

December 1955 to permit completion of the work under the contract and final reporting of the results and conclusions of the program by July 1957. Only a small portion of the appropriations for fiscal year 1957 could be utilized for contract research just at the time when the need for advanced research and development of promising processes is expected to be paramount.

To permit continuity and the attainment of the program's goals, an extension of time is desirable. The results obtained to date are, as has already been noted, sufficiently encouraging to indicate that, if the activity is given sufficient time, economical processes for the treatment of brackish water and sea water will be developed. Research of this type is perforce long-range in character. Unless assurance can be given to the private firms and research organizations who are serving or will serve the program as contractors that promising studies will be carried to completion, we will have difficulty achieving worthwhile results even in fiscal years 1956 and 1957. Assurance that the program will not be interrupted is needed now if we are to undertake research that will not be completed until after fiscal year 1957. Interruption or abandonment of the program after fiscal year 1957 would, in any event, dissipate a large part of the valuable results already achieved or anticipated, with a consequent loss to the Government.

Since the initiation of the research program under the act of July 3, 1952, excellent cooperation has been received from various organizations. Efforts are continually being made to encourage private development of processes and to interest industrial firms in the problem. The expansion of our basic authorization proposed in H. R. 2126 to permit an expenditure up to \$500,000 for research to be conducted in existing Government laboratories would, however, prove advantageous in a number of ways. Several individual scientists have had ideas on processes worthy of at least exploratory research effort but do not have laboratory facilities available. Some would be agreeable to having the research carried out at a Government laboratory but the research has not been carried out because of apparent lack of authority to utilize such laboratories. Government scientists, in some cases, have worthwhile research to propose in which they and their laboratory are best qualified to proceed. Another area in which operations in a Government laboratory would be valuable is in making unbiased comparisons of processes and in confirmation of research results. In some cases, Federal scientific organizations offer the only satisfactory personnel and facilities to conduct certain investigations.

The Bureau of the Budget has advised that there would be no objection to the submission of this report to your committee but that no commitment can be made at this time with respect to the amount of \$6 million which the bill, if enacted, would authorize to be appropriated.

Sincerely yours,

FRED G. AANDAHL,
Assistant Secretary of the Interior.

Enactment of this bill is unanimously recommended by the Committee on Interior and Insular Affairs.

CHANGES IN EXISTING LAW

In compliance with clause 3, rule XIII, of the Rules of the House of Representatives, changes in existing law made by the bill, as introduced, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italics, existing law in which no change is proposed is shown in roman):

ACT OF JULY 3, 1952 (66 STAT. 328; 42 U. S. C., SECS. 1951 FF.)

That, in view of the acute shortage of water in the arid areas of the Nation and elsewhere and the excessive use of underground waters throughout the Nation, it is the policy of the Congress to provide for the development of practicable low-cost means of producing from sea water, of from other saline waters, water of a quality suitable for agriculture, industrial, municipal, and other beneficial consumptive uses on a scale sufficient to determine the feasibility of the development of such production and distribution on a large-scale basis, for the purpose of conserving and increasing the water resources of the Nation.

SEC. 2. In order to carry out the purposes of this Act, the Secretary of the Interior, acting through such agencies of the Department of the Interior as he may deem appropriate, is authorized—

(a) by means of research grants and contracts as set forth in subsection (d) of this section *and by use of the facilities of existing Federal scientific laboratories within the monetary limits set forth in section 8 of this Act*, to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation;

(b) to study methods for the recovery and marketing of byproducts resulting from and incident to the production of water as herein provided for the purpose of ascertaining the possibilities of offsetting the costs of water production in any area by the commercial utilization of such products;

(c) to acquire, by purchase, license, lease, or donation, secret processes, technical data, inventions, patent applications, patents, licenses, land and any interest in land (including water rights, easements, and leasehold interests), plants and facilities, and other property or rights: *Provided*, That the land or other property acquired hereunder shall not exceed that necessary to carry on the experiments and demonstrations for the purposes herein provided;

(d) to engage, by noncompetitive contract or otherwise, chemists, physicists, engineers, and such other personnel as may be deemed necessary, and any educational institution, scientific organization, or industrial or engineering firm deemed suitable to do any part of the research or other work, and to the extent appropriate to correlate and coordinate the research and development work of such educational institutions, scientific organizations and industrial and engineering firms; and

(e) to cooperate with any other Federal, State, or municipal department, agency, or instrumentality, and with any private person, firm, educational institution, or other organization in effectuating the purpose of this Act.

SEC. 3. Research undertaken by the Secretary of the Interior under the authority contained in this Act shall be coordinated or conducted jointly with the Department of Defense to the greatest practicable extent compatible with military and security limitations, to the end that research and developments under this Act which are primarily of a civil nature will contribute to the defense of the Nation and that research and developments in the same field which are primarily of a military nature and are conducted by the Department of Defense will be made available to advance the purposes of this Act and to strengthen the civil economy of the Nation.

SEC. 4. The Secretary of the Interior is authorized, for the sole purpose of this Act, to dispose of all water and other products produced as a result of his operations under this Act pursuant to regulations to be prescribed by him: *Provided*, That nothing in this Act shall be construed to alter existing law with respect to the ownership and control of water.

SEC. 5. All moneys received for products of the plants under this Act shall be paid into the Treasury as miscellaneous receipts.

SEC. 6. The Secretary of the Interior shall make reports to the President and the Congress at the beginning of each regular session of the action taken or instituted by him under the provisions of this Act. The report shall include suitable recommendations for further legislation.

SEC. 7. The Secretary of the Interior may issue rules and regulations to effectuate the purposes of this Act.

SEC. 8. [There are authorized to be appropriated, from any funds in the Treasury not otherwise appropriated, such sums, not to exceed \$2,000,000, for a five-year period, to carry out the provisions of this Act: *Provided*, That departmental expenses for the correlation and coordination of information over such five-year period shall not exceed the sum of \$500,000: *Provided further*, That such departmental expenses shall be scheduled in equal amounts for each year of such period insofar as practicable.] *There are authorized to be appropriated such sums, but not more than \$6,000,000 in all, as may be required (a) to carry out the provisions of this Act during the fiscal years 1953 to 1963, inclusive, (b) to finance for not more than two years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this Act, and (c) during the same additional period plus one more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this Act. Departmental expenses for direction of the program authorized by this Act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed \$1,500,000, and not more than \$500,000 shall be expended for research and development in Federal laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable.*

Union Calendar No. 31

84TH CONGRESS
1ST SESSION

H. R. 2126

[Report No. 89]

IN THE HOUSE OF REPRESENTATIVES

JANUARY 13, 1955

Mr. ENGLE introduced the following bill; which was referred to the Committee on Interior and Insular Affairs

MARCH 7, 1955

Committed to the Committee of the Whole House on the State of the Union
and ordered to be printed

A BILL

To amend the Act of July 3, 1952, relating to research in the
development and utilization of saline waters.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C.,
4 secs. 1951 ff.), is hereby amended as follows:

5 (1) By modifying subsection (a) of section 2 of said
6 Act so as to read: "by means of research grants and contracts
7 as set forth in subsection (d) of this section and by use of
8 the facilities of existing Federal scientific laboratories within
9 the monetary limits set forth in section 8 of this Act, to
10 conduct research and technical development work, to make
11 careful engineering studies to ascertain the lowest invest-

1 ment and operating costs, and to determine the best plant
2 designs and conditions of operation”.

3 (2) By modifying section 8 of said Act so as to read:
4 “There are authorized to be appropriated such sums, but
5 not more than \$6,000,000 in all, as may be required (a)
6 to carry out the provisions of this Act during the fiscal years
7 1953 to 1963, inclusive, (b) to finance for not more than
8 two years beyond the end of said period such grants, con-
9 tracts, cooperative agreements, and studies as may thereto-
10 fore have been undertaken pursuant to this Act, and (c)
11 during the same additional period plus one more year, to
12 correlate, coordinate, and round out the results of studies
13 and research undertaken pursuant to this Act. Departmental
14 expenses for direction of the program authorized by this Act
15 and for the correlation and coordination of information as
16 provided in subsection (d) of its section 2 shall not exceed
17 \$1,500,000, and not more than \$500,000 shall be expended
18 for research and development in Federal laboratories. Both
19 of said sums shall be scheduled for expenditure in equal
20 annual amounts insofar as is practicable.”

84TH CONGRESS
1ST SESSION

H. R. 2126

[Report No. 89]

A BILL

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

By Mr. ENGLE

JANUARY 13, 1955

Referred to the Committee on Interior and Insular Affairs

MARCH 7, 1955

Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

112th Congress, 1st Session
H. R. 2126

112th Congress, 1st Session

A BILL

to amend the Federal Food, Drug, and Cosmetic Act

and for other purposes

Enacted May 22, 2011

Approved by the President May 22, 2011

Effective date: May 22, 2011

U.S. GOVERNMENT PRINTING OFFICE: 2011

For sale by the Superintendent of Documents

7. CIVIC AUDITORIUM. The Rules Committee reported a resolution for consideration of H. R. 1825, creating a commission to plan a D. C. civic auditorium (p. 4609).
8. RECLAMATION; LOANS. The Interior and Insular Affairs Committee ordered reported H. R. 5881, to provide for Federal cooperation in non-Federal reclamation projects and for non-Federal cooperation in Federal projects (p. D368).
9. SALT-WATER RESEARCH. The Rules Committee ordered reported a resolution for consideration of H. R. 2126, to expand the salt-water research program (p. D368).
10. IMPORTS. The Ways and Means Committee ordered reported H. R. 5560, making permanent the existing privilege of free importation of personal and household goods under Government orders, and H. R. 5675, continuing through June 1958 the suspension of import taxes on copper (p. D369).
11. POSTAL PAY. The conferees agreed to report a revised version of S. 1, the postal pay bill (pp. D369-70).
12. SURPLUS COMMODITIES. The revision of H. R. 2851, as ordered reported by the House Agriculture Committee, provides as follows: Requires CCC to make available to HEW, for providing emergency assistance to the needy, agricultural commodities and products (including cereals and cereal products) acquired through price support operations. Authorizes CCC to pay processing and other charges up to the time of delivery to central locations in States. Upon certifications of the Labor Department and the Governors as to need, directs HEW to make such commodities and products available to State agencies. Provides that CCC make Sec. 416 commodities available without compensation and that HEW reimburse CCC for other commodities at the acquisition cost or current support price (whichever is lower) plus the costs of processing, etc. Provides that CCC expenditures under this bill may be made in advance of appropriations and shall be entered as accounts receivable.
13. EXPORT-IMPORT BANK. H. Doc. 150 (Apr. 28) is a proposed increase in the amount of \$300,000 in the limitation on expenses (to provide for additional staff and other expenses required for a growing workload) for the fiscal year 1956 for the Export-Import Bank of Washington.
14. SOIL CONSERVATION. The amendments by Sen. Holland and others to H. R. 1573, to repeal the ACP-acreage allotments tie-in, (see Digest 71), would exempt from the present ACP-acreage allotments tie-in farmers harvesting corn for ensilage, wheat in an amount not in excess of 15 acres, a commodity or a crop on which producers have rejected marketing quotas in a referendum, or peanuts for seed to be used for the raising of peanuts for hogs. The amendments would also require applicants to establish their eligibility for payments in such manner as the Secretary may prescribe by regulation.

SENATE

15. TRADE AGREEMENTS. Continued debate on H. R. 1, the trade agreements extension bill (pp. 4620-1, 4631, 4634-43, 4645-97), and agreed to limit debate on bill and that no nongermane amendment will be received (p. 4621). Sens. Beall, Morse, O'Mahoney, and Humphrey submitted amendments to be proposed to this bill.

During debate on this bill Sen. Malone stated that "H. R. 1 is an economic Yalta," and that, "Farmers, too, ... will be an early target of the global free trade agency, as will producers of milk, butter, cheese, and other farm commodities" (pp. 4648-51). Sen. Malone also spoke in favor of giving

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

Issued
For actions of

May 4, 1955
May 3, 1955
84th-1st, No. 72

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HIGHLIGHTS: House debated price support bill. House committee ordered reported bill for Federal loans for non-Federal reclamation projects. Senate debated trade agreements bill. Sen. Symington criticized Mo. ASC committee. Sen. Aiken introduced and discussed bill to cooperate with States in reforestation.

HOUSE

1. PRICE SUPPORTS. Began debate on H. R. 12, to provide for 90% price supports on basic commodities. General debate was concluded, and the bill is to be read for amendment today. (pp. 4539-94.)
2. PERSONNEL. Agreed to H. Con. Res. 121, requesting the President to return for correction S. 1094, to clarify the Federal Employees' Uniform Allowance Act (pp. 4594-5).
3. CCC CLAIMS. Transferred from the Agriculture Committee to the Banking and Currency Committee H. R. 2137, 2872, 2007, 694, and 846, to relieve from CCC claims persons who innocently purchase converted fungible goods (p. 4594).
4. RESERVE MANPOWER. The Rules Committee reported a resolution for consideration of H. R. 5297, the military reserve manpower bill (p. 4538).
5. ANIMAL DISEASE. The Agriculture Committee ordered reported H. R. 4576, to provide for certain indemnity payments in Iowa on account of vesicular exanthema which could not be made because of a technicality (p. D367).
6. DROUGHT RELIEF. The Agriculture Committee considered but postponed action on H. R. 4176, to provide that feed furnished in disaster areas shall be made available for working stock and hogs (p. D367).

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

Issued May 5, 1955
For actions of May 4, 1955
84th-1st, No. 73

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HIGHLIGHTS: House debated price support bill, agreeing to amendment making peanuts nonbasic. House committee reported bill for Federal cooperation in non-Federal reclamation projects. House subcommittee approved measure for USDA study of burley tobacco program. Senate passed trade agreements bill. Senate made Interior appropriation bill, which includes FS items, its pending business. Senate committee reported bills to give CEA subpoena power and protect purchasers of fungible goods from CCC claims.

HOUSE

1. PRICE SUPPORTS. Continued debate on H. R. 12, the price support bill (pp. 4699-725, A2986-7). By a teller vote of 186-150, agreed to an amendment by Rep. Green, Pa., to eliminate peanuts from the list of basic commodities and to repeal legislation for peanut allotments (pp. 4699-713).
2. RECLAMATION; LOANS. The Interior and Insular Affairs Committee reported without amendment H. R. 5881, to supplement the Federal reclamation laws by providing for Federal cooperation in non-Federal projects and for participation by non-Federal agencies in Federal projects (H. Rept. 481)(p. 4727).
3. SALT-WATER RESEARCH. The Rules Committee reported a resolution for consideration of H. R. 2126, to expand the Interior Department's salt-water research program (p. 4699).
4. TOBACCO. A subcommittee approved for reporting to the Agriculture Committee S. J. Res. 60, directing USDA to study and report on burley tobacco controls (p. D374).
5. COPPER IMPORTS. The Ways and Means Committee reported without amendment H. R. 5695, to continue through June 1958 the suspension of certain import taxes on copper (H. Rept. 485)(p. 4727).

6. REORGANIZATION. The Government Operations Committee reported without amendment S. 1763, to extend the time for liquidation of the Hoover Commission (H. Rept. 482)(p. 4727).
7. PURCHASING. The Government Operations Committee submitted a report, "Federal Catalog Program Report — Identification and Conversion" (H.Rept.483)(p.4727).
8. PROPERTY AND ADMINISTRATIVE SERVICES. Received from GSA a proposed bill "to amend the Federal Property and Administrative Services Act of 1949, as amended, and for other purposes"; to Government Operations Committee (p. 4727).
9. LEGISLATIVE PROGRAM. Majority Leader McCormack announced the legislative program as follows: Today (Thurs.), price-support and reserve-manpower bills; Fri. and Sat., not in session; Mon., conference report on postal pay bill, and statehood bill (p. 4725).

SENATE

10. TRADE AGREEMENTS. Passed, 75-13, with amendments H. R. 1, to extend to June 30, 1958 the authority of the President to enter into trade agreements (pp. 4732-4851). Sens. Byrd, George, Gore, Millikin, and Martin were appointed Senate conferees on this bill (pp. 4850-1).

During debate on this bill Sen. Langer stated that the Trade Agreements Act "has proved disastrous to the farmers of the Nation"; that his reasons for voting against extension of this Act are set forth in the hearings held before the Subcommittee on Antitrust and Monopoly, Senate Judiciary Committee, on importations of rye and barley; and inserted the transcript of these hearings (pp. 4826-50).

Sen. Malone discussed and inserted a GATT nations' "Decision to Grant a Waiver to the U. S. in Connection with Import Restrictions Imposed Under Section 22 of the U. S. Agricultural Adjustment Act of 1933, as Amended" (pp. 4747-8).
11. INTERIOR AND RELATED AGENCIES APPROPRIATION BILL FOR 1956. This bill, H. R. 5085, was made the pending business (pp. 4851, 4853).
12. COMMODITY EXCHANGES; CCC CLAIMS. The Agriculture and Forestry Committee reported without amendment S. 1398, to authorize subpenas under the Commodity Exchange Act (S. Rept. 268); and with amendment H. R. 1831, to amend the CCC Charter Act in order to protect innocent purchasers of fungible goods converted by warehousemen from claims of the CCC (S. Rept. 270) (p. 4730).
13. ANIMAL DISEASE. The Agriculture and Forestry Committee reported without amendment S. 1133, to provide for certain indemnity payments in Iowa on account of vesicular exanthema which could not be made because of a technicality (p. 4730).
14. COMMITTEES. The chairman, Agriculture and Forestry Committee, was authorized to appoint subcommittees to consider the following bills: S. 1286, Farm Credit Act of 1955; S. 1636, use of humane methods in slaughter of livestock and poultry in interstate or foreign commerce; and S. J. Res. 20, to preserve and strengthen the family-farm pattern of American agriculture (p. D372).
15. ROADS; TREATIES. Received resolutions urging enactment of legislation for the rapid completion of the Interstate System of Highways, and favoring the enactment of the Bricker amendment to limit the President's treaty-making power (p. 4729).

CONSIDERATION OF H. R. 2126

MAY 4, 1955.—Referred to the House Calendar and ordered to be printed

Mr. BOLLING, from the Committee on Rules, submitted the following

R E P O R T

[To accompany H. Res. 231]

The Committee on Rules, having had under consideration House Resolution 231, report the same to the House with the recommendation that the resolution do pass.



House Calendar No. 54

84TH CONGRESS
1ST SESSION

H. RES. 231

[Report No. 480]

IN THE HOUSE OF REPRESENTATIVES

MAY 4, 1955

Mr. BOLLING, from the Committee on Rules, reported the following resolution;
which was referred to the House Calendar and ordered to be printed

RESOLUTION

1 *Resolved*, That upon the adoption of this resolution it
2 shall be in order to move that the House resolve itself
3 into the Committee of the Whole House on the State of
4 the Union for the consideration of the bill (H. R. 2126)
5 to amend the Act of July 3, 1952, relating to research in
6 the development and utilization of saline waters. After gen-
7 eral debate, which shall be confined to the bill, and shall
8 continue not to exceed one hour, to be equally divided and
9 controlled by the chairman and ranking minority member
10 of the Committee on Interior and Insular Affairs, the bill
11 shall be read for amendment under the five-minute rule.
12 At the conclusion of the consideration of the bill for amend-

1 ment, the Committee shall rise and report the bill to the
2 House with such amendments as may have been adopted,
3 and the previous question shall be considered as ordered on
4 the bill and amendments thereto to final passage without
5 intervening motion except one motion to recommit.

House Calendar No. 54

84TH CONGRESS
1ST SESSION

H. RES. 231

[Report No. 480]

RESOLUTION

Providing for the consideration of H. R. 2126,
a bill to amend the Act of July 3, 1952, relat-
ing to research in the development and utili-
zation of saline waters.

By Mr. BOLLING

MAY 4, 1955

Referred to the House Calendar and ordered to be
printed

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

Issued May 17, 1955
For actions of May 16, 1955
84th-1st, No. 80

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HIGHLIGHTS: House received conference report on USDA appropriation bill. House passed salt water research bill. House passed inter-agency fire protection agreements bill. Ready for President. Senate committee ordered reported bill to increase per diem allowances.

HOUSE

1. AGRICULTURAL APPROPRIATION BILL, 1956. Received the conference report on this bill, H. R. 5239 (H. Rept. 590) (pp. 5386-7). Attached to this Digest are statements pertaining to the measure.
2. SALT-WATER RESEARCH. Passed without amendment H. R. 2126, to expand the Interior Department's salt-water research program (pp. 5388-5402).
3. FOREST FIRES. Passed without amendment S. 1006, to authorize the execution of agreements between agencies of the U. S. and other agencies and instrumentalities for mutual aid in fire protection (pp. 5402-4). This bill will now be sent to the President.
4. REORGANIZATION. Passed without amendment S. 1763, to extend for one month (until June 30, 1955) the time for liquidation of the Hoover Commission (p. 5396). This bill will now be sent to the President.
Rep. Karsten insisted that the report of the Hoover Commission Task Force on Water Resources and Power be made public at once (p. 5405).
5. SURPLUS FOOD. Rep. Mack discussed the program for the distribution of surplus commodities in Ill. (p. 5409).
6. APPROPRIATIONS. The Appropriations Committee reported H. R. 6239; the D. C. appropriation bill for 1956 (H. Rept. 589) (p. 5411).
7. LANDS. The Interior and Insular Affairs Committee ordered reported with amendment S. 265 and H. R. 1844, to amend acts authorizing agricultural entries under the nonmineral land laws of certain mineral lands in order to increase

the limitation with respect to desert entries made under such act; and H. R. 4894, to repeal laws authorizing sale of public lands which are valuable chiefly for timber and stone (p. D419).

8. RECLAMATION. The Interior and Insular Affairs Committee ordered reported with amendment H. R. 4663, to authorize the Trinity River division, Central Valley project, Calif. (p. D419).

SENATE

9. SURPLUS PROPERTY; TRAVEL; BUDGET. The Government Operations Committee ordered reported with amendment H. R. 3322, to amend the Federal Property and Administrative Services Act of 1949, so as to improve the administration of the program for the utilization of surplus property for educational and public health purposes; S. 1795, to amend the Travel Expense Act of 1949, to provide an increased maximum per diem allowance for subsistence and travel expenses; and S. 1805, to amend the Legislative Reorganization Act of 1946 to create a Joint Committee on the Budget (pp. D417-8).

BILLS INTRODUCED

10. TRANSPORTATION. H. R. 6246, by Rep. Bonner, to amend section 4153 of the Revised Statutes, as amended, to authorize more liberal propelling power allowances in computing the net tonnages of certain vessels; to Merchant Marine and Fisheries Committee (p. 5411).

H. R. 6271, by Rep. Pelley, providing relief against certain forms of discrimination in interstate transportation; to Interstate and Foreign Commerce Committee (p. 5412).

11. GUAM. H. R. 6254, by Rep. Engle, to implement section 25 (b) of the Organic Act of Guam by carrying out the recommendations of the Commission on the Application of Federal Laws to Guam; to Interior and Insular Affairs Committee (p. 5411).

12. PERSONNEL. H. R. 6255, to amend the Civil Service Retirement Act of May 29, 1930, as amended, to increase the annuities of present and future annuitants; to Post Office and Civil Service Committee (p. 5411).

H. R. 6273, by Rep. Teague, Calif., to amend the Civil Service Retirement Act of May 29, 1930, as amended; to Post Office and Civil Service Committee (p. 5412).

13. WATER COMPACT. H. R. 6256, by Rep. George, granting the consent of Congress to the States of Kansas and Oklahoma, to negotiate and enter into a compact relating to their interests in, and the apportionment of the waters of the Arkansas River and its tributaries as they affect such States; to Public Works Committee (p. 5411).

14. RECLAMATION. H. R. 6257, by Rep. Green, Ore., to terminate the prohibition against employment of Mongolian labor in the construction of reclamation projects; to Interior and Insular Affairs Committee (p. 5411).

H. R. 6268, by Rep. Metcalf, to facilitate the construction of drainage works and other minor items on Federal reclamation and like projects; to Interior and Insular Affairs Committee (p. 5411).

15. LANDS. H. R. 6278, to authorize the conveyance for public purposes of certain lands in the State of Georgia; to Agriculture Committee (p. 5412).

84TH CONGRESS
1ST SESSION

H. R. 2126

IN THE SENATE OF THE UNITED STATES

MAY 17 (legislative day, MAY 2), 1955

Read twice and referred to the Committee on Interior and Insular Affairs

AN ACT

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C.,
4 secs. 1951 ff.), is hereby amended as follows:

5 (1) By modifying subsection (a) of section 2 of said
6 Act so as to read: "by means of research grants and contracts
7 as set forth in subsection (d) of this section and by use of
8 the facilities of existing Federal scientific laboratories within
9 the monetary limits set forth in section 8 of this Act, to
10 conduct research and technical development work, to make
11 careful engineering studies to ascertain the lowest invest-

1 ment and operating costs, and to determine the best plant
2 designs and conditions of operation”.

3 (2) By modifying section 8 of said Act so as to read:
4 “There are authorized to be appropriated such sums, but
5 not more than \$6,000,000 in all, as may be required (a)
6 to carry out the provisions of this Act during the fiscal years
7 1953 to 1963, inclusive, (b) to finance for not more than
8 two years beyond the end of said period such grants, con-
9 tracts, cooperative agreements, and studies as may thereto-
10 fore have been undertaken pursuant to this Act, and (c)
11 during the same additional period plus one more year, to
12 correlate, coordinate, and round out the results of studies
13 and research undertaken pursuant to this Act. Departmental
14 expenses for direction of the program authorized by this Act
15 and for the correlation and coordination of information as
16 provided in subsection (d) of its section 2 shall not exceed
17 \$1,500,000, and not more than \$500,000 shall be expended
18 for research and development in Federal laboratories. Both
19 of said sums shall be scheduled for expenditure in equal
20 annual amounts insofar as is practicable.”

Passed the House of Representatives May 16, 1955.

Attest:

RALPH R. ROBERTS,

Clerk.

AN ACT

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

MAY 17 (legislative day, MAY 2), 1955

Read twice and referred to the Committee on Interior and Insular Affairs

Mr. JONAS. I think that is true; but we in North Carolina have a right to claim part of the credit for this great American.

SPECIAL ORDER GRANTED

Mr. VAN ZANDT asked and was given permission to address the House for 10 minutes today, following the legislative program and any special orders heretofore entered.

RESEARCH IN THE DEVELOPMENT AND UTILIZATION OF SALINE WATERS

Mr. BOLLING. Mr. Speaker, by direction of the Committee on Rules, I call up House Resolution 231 and ask for its immediate consideration.

The Clerk read the resolution, as follows:

Resolved, That upon the adoption of this resolution it shall be in order to move that the House resolve itself into the Committee of the Whole House on the State of the Union for the consideration of the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters. After general debate, which shall be confined to the bill, and shall continue not to exceed 1 hour, to be equally divided and controlled by the chairman and ranking minority member of the Committee on Interior and Insular Affairs, the bill shall be read for amendment under the 5-minute rule. At the conclusion of the consideration of the bill for amendment, the Committee shall rise and report the bill to the House with such amendments as may have been adopted, and the previous question shall be considered as ordered on the bill and amendments thereto to final passage without intervening motion except one motion to recommit.

Mr. BOLLING. Mr. Speaker, I yield 30 minutes to the gentleman from Illinois [Mr. ALLEN]; and at this time I yield myself such time as I may require.

Mr. Speaker, House Resolution 231 will make in order the consideration of the bill H. R. 2126, to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters; provides for an open rule with 1 hour of general debate.

H. R. 2126 would amend the Saline Water Act of 1952, to provide for uninterrupted continuation of the saline water conversion research program. The act of 1952 had authorized the appropriation of \$2 million to carry on a 5-year research program in order to develop economically feasible methods of converting sea and other saline waters to fresh water of a quality suitable for agricultural, municipal, and other uses. If H. R. 2126 is passed, the period of the research program would be extended, the amount authorized to be appropriated for conducting this research would be increased, and finally the bill would permit research to be carried on within specific areas in existing Government laboratories.

The report on H. R. 2126 indicates that the extension of this legislation is necessary at this time because under the provisions of the Saline Water Act of 1952 all work must be completed prior to July 15, 1957. Thus the report goes on

to state that the most active research would have to be terminated by about December 1955 in order that the work might be completed under the present contracts and that the reports might be submitted by the deadline of July 1957.

Specifically H. R. 2126 would provide for the uninterrupted continuation of the saline water research program and would permit the officials in charge of the program to have the use and the help of a certain amount of technical assistance from existing Federal scientific facilities. The bill would amend present law to permit use of the facilities of existing Federal scientific laboratories. The present act would be amended to raise the limit of funds authorized to be appropriated from \$2 million to \$6 million. Out of this amount, not more than \$1,500,000 could be used for the direction of the program and for the correlation and coordination of the studies and information and not more than \$500,000 could be spent for research and development in Federal laboratories. The program itself would be extended through fiscal year 1963 and would provide for 1 additional year for correlating and coordinating the results, studies, and research undertaken under the program.

Mr. Speaker, this bill was unanimously recommended by the Committee on Interior and Insular Affairs, and the Department of the Interior also favors its enactment.

Mr. ALLEN of Illinois. Mr. Speaker, I know of no one who is opposed to this rule.

Mr. BOLLING. Mr. Speaker, I yield 15 minutes to the gentleman from Texas [Mr. PATMAN], and ask unanimous consent that he be permitted to speak out of order.

The SPEAKER. Is there objection to the request of the gentleman from Missouri?

There was no objection.

(Mr. PATMAN asked and was given permission to revise and extend his remarks and include extraneous matter.)

EXTEND HOOVER COMMISSION

Mr. PATMAN. Mr. Speaker, this afternoon unanimous consent will be asked for the consideration of a resolution to extend the Hoover Commission for 30 days until June 30. Under present law it expires this May 31. This resolution would give it 30 more days, or until June 30, to make its reports, and then 90 additional days to liquidate. It is my understanding that all reports will be filed within the 30 additional days.

This morning you as Members of the House received a document on business enterprise.

Mr. BROWN of Ohio. Mr. Speaker, will the gentleman yield?

Mr. PATMAN. I yield.

Mr. BROWN of Ohio. I think it might clarify the thinking of the Members to point out that the 30-day extension would apply to the life of the Commission itself for the purpose of making its reports. The Commission would not be in existence during the 90-day period. That would simply permit the Chairman of the Commission to return to the proper agencies of the Government and to the Treasury and moneys left over,

and all this and that. It is simply to wind up the activities of the Commission. The Commission itself would come to an end on June 30.

Mr. PATMAN. That means that all reports will have been made, of all types and characters?

Mr. BROWN of Ohio. All reports, yes. One of the purposes of the resolution is to give time to get these reports printed.

Mr. PATMAN. I thank the gentleman.

Mr. Speaker, this time was given to me in order that I may speak on this matter now and not get the time by reserving the right to object to the consideration of the resolution when it comes up. I have no objection to the resolution to extend the Commission 30 days, although I am not in favor of the Hoover Commission, but I would certainly be against the creation of another Hoover Commission. I feel that this is the last commission of that type we will have in the Congress. I hope so, because I think we made a serious mistake in starting out on this approach.

In the 80th Congress, when the question was first submitted to us, of having a bipartisan commission composed of a former President of the United States, who certainly knew something about the executive branch, to head the Commission as chairman, and an outstanding Democrat to be vice chairman, and the Commission to be composed of 6 Republicans and 6 Democrats in order to make a study and an investigation to prevent duplication of effort in the Government, and to prevent waste and extravagance, it certainly did appeal to all Members of the House. I know it appealed to me. It passed unanimously. It was a fine approach. It was looked upon favorably. And it was all right—they did some fine work. But then in the 83d Congress, which was 2 years ago, a resolution was passed to provide for another Hoover Commission. We naturally looked upon it as a continuation of the first Commission. But it is not a continuation of the first one. Instead of just investigating waste and extravagance, it is also going into the policymaking business as the Commission feels it has the authority to go into policymaking.

A PART OF LEGISLATIVE BRANCH?

The other day I was attending a meeting of a subcommittee of the Committee on Government Operations of the House of Representatives and I heard a chairman, Mr. J. P. Binns, of one of the Hoover Commission task forces make the statement for the record in writing that the Attorney General of the United States has ruled that the Hoover Commission is part of the legislative branch of the Government. Let me repeat that—that the Attorney General of the United States has ruled that the Hoover Commission is a part of the legislative branch of the Government. That was disturbing to me and it should be disturbing to every Member of the House of Representatives.

Mr. HOFFMAN of Michigan. Mr. Speaker, will the gentleman yield?

Mr. PATMAN. I yield.

action agreed upon and recommended in the accompanying conference report as to each of such amendments, namely:

AGRICULTURAL RESEARCH SERVICE

Amendments Nos. 1 and 2—Research: Appropriate \$37,800,000, instead of \$37,000,000 as proposed by the House and \$38,040,000 as proposed by the Senate, and eliminate House language earmarking funds for a special study of effects of acreage reductions. In view of the urgent need for research on basic problems, the conference committee insists that research projects of limited value, such as orchids of Guatemala, Flora of Dominica, differences in clothing of farm and urban people, population dynamics, rural sociology, methodology, and child-rearing practices, and projects undertaken primarily for the benefit of employees doing graduate work, be discontinued in favor of more important work. The conferees are in full agreement that discontinuance of nonessential and nonproductive research projects, such as those listed above, will make it possible for the Department to cover all valuable and worthwhile research projects proposed in the budget. The final amount agreed to includes sufficient funds to provide for research projects inserted by the Senate and emphasized in the Senate report, including \$100,000 for research on acreage reductions and \$50,000 additional for the National Arboretum. The conferees are also in full agreement that the recent action of the Department decreasing attention to home-economics research should be reviewed and a portion of the funds transferred to human nutrition should be redirected to its original purpose, as contemplated by the amendment adopted in the Senate.

Amendments Nos. 3 and 4—Plant and animal disease and pest control: Appropriate \$18,658,700, instead of \$17,750,000 as proposed by the House and \$18,758,700 as proposed by the Senate, and increase the fund for emergency outbreaks of insect and plant diseases to \$1,000,000. The conferees have agreed to an increase of \$308,700 for added plant quarantine inspection at major United States ports in view of (1) the increasing threat of importation of nematodes, citrus blackfly, fruit flies, Khapra beetle, and other plant pests from various areas of the world, and (2) the decreased quarantine inspection resulting from the gradual reduction in number of customs inspectors in recent years.

EXTENSION SERVICE

Amendment No. 5—Penalty Mail: Appropriate \$1,650,000, instead of \$1,500,000 as proposed by the House and \$1,800,000 as proposed by the Senate.

SOIL CONSERVATION SERVICE

Amendment No. 6—Conservation operations: Appropriate \$59,300,000, instead of \$58,612,579 as proposed by the House and \$60,000,000 as proposed by the Senate.

AGRICULTURAL CONSERVATION PROGRAM SERVICE

Amendments Nos. 7 and 8: Authorize \$22,800,000 for administrative expenses, instead of \$22,500,000 as proposed by the House and \$23,000,000 as proposed by the Senate, and provide \$4,320,000 for section 392 expenses, instead of \$4,020,000 as proposed by the House and \$4,520,000 as proposed by the Senate.

Amendments Nos. 9 and 10: Eliminate language proposed by the Senate relative to the 5 percent transfer of funds for technical services required in formulating and carrying out the agricultural conservation program, and restore language as proposed by the House.

AGRICULTURAL MARKETING SERVICE

Amendments Nos. 11 and 12—Marketing research and agricultural estimates: Appropriate \$11,046,000, instead of \$10,981,000 as proposed by the House and \$11,096,000 as proposed by the Senate, and restore House

language providing for a special study on the price spread between the farmer and the consumer, changing the amount named therein to \$250,000. The conference committee is in full agreement that the July crop reports for popcorn and honey should be reinstated within the amount appropriated.

Amendment No. 13—Marketing services: Appropriate \$11,960,000 instead of \$11,810,000 as proposed by the House and \$12,010,000 as proposed by the Senate.

FOREIGN AGRICULTURAL SERVICE

Amendment No. 14: Restores House language providing for a special study of foreign agricultural production, changing the amount named therein to \$250,000. In view of foreign expansion at the expense of American producers, the conferees agree that the bringing of statistics on foreign agriculture up to date is highly important to the success of the new program being inaugurated by this service and is basic to the formulation of agricultural policies.

COMMODITY STABILIZATION SERVICE

Amendment No. 15—Agricultural adjustment programs: Authorizes \$6,000,000 for administrative expenses, instead of \$5,500,000 as proposed by the House and \$6,165,000 as proposed by the Senate.

Amendment No. 16—Sugar Act program: Authorizes \$1,575,000 for administrative and related expenses, instead of \$1,440,000 as proposed by the House and \$1,617,000 as proposed by the Senate.

FARMERS HOME ADMINISTRATION

Amendment No. 17: Changes code citations as proposed by the Senate.

Amendment No. 18—Salaries and expenses: Authorizes transfer of not to exceed \$450,000 from the Farm Tenant Mortgage Insurance Fund, instead of \$400,000 as proposed by the House and \$500,000 as proposed by the Senate.

Amendment No. 19: Changes code citations as proposed by the Senate.

OFFICE OF THE GENERAL COUNSEL

Amendments Nos. 20 and 21: Appropriate \$2,100,000, instead of \$2,079,000 as proposed by the House and \$2,164,000 as proposed by the Senate, and authorize transfers of \$375,000, instead of \$300,000 as proposed by the House.

OFFICE OF THE SECRETARY

Amendment No. 22: Appropriate \$2,144,300, instead of \$2,116,000 as proposed by the House and \$2,172,600 as proposed by the Senate.

COMMODITY CREDIT CORPORATION

Amendment No. 23—Limitation on administrative expenses: Restore language proposed by the House, changing the amount named therein to \$1,000,000.

Amendment No. 24: Reported in disagreement.

SPECIAL ACTIVITIES

Amendment No. 25—Reimbursement to Commodity Credit Corporation for transfer of wheat to Pakistan: Appropriate \$69,385,831 as proposed by the Senate, instead of \$69,273,881 as proposed by the House.

Amendment No. 26—Reimbursement to Commodity Credit Corporation for emergency famine relief to friendly peoples: Appropriate \$9,545,830 as proposed by the Senate, instead of \$9,676,628 as proposed by the House.

GENERAL PROVISIONS

Amendment No. 27—Section 504: Eliminates the words "or apples" inserted by the Senate. The conference action is based on the fact that this matter is being handled by the appropriate legislative committees. The conferees do not approve of any forecast of apple prices by the Department during the coming fiscal year unless contrary legislative action is taken by the Congress. This re-

striction is not intended to affect other types of forecasts for apples.

JAMIE L. WHITTEN,
FRED MARSHALL,
CHARLES B. DEANE,
CLARENCE CANNON,
H. CARL ANDERSEN,
WALT HORAN,
CHARLES W. VURSELL,
JOHN TABER,

Managers on the Part of the House.

CORRECTION OF VOTE

Mr. SHEPPARD. Mr. Speaker, on rollcall No. 63 I am recorded as not voting. I was present and voted "yea." I ask unanimous consent that the RECORD and Journal be corrected accordingly.

The SPEAKER. Is there objection to the request of the gentleman from California?

There was no objection.

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

Mr. PRIEST. Mr. Speaker, I ask unanimous consent that the Committee on Interstate and Foreign Commerce may have until midnight tonight to file a report on the investigation of the air-navigation system generally known as visual omnirange distance measuring equipment tactical air navigation.

The SPEAKER. Is there objection to the request of the gentleman from Tennessee?

There was no objection.

DAVY CROCKETT

(Mr. JONAS asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. JONAS. Mr. Speaker, interest in the Davy Crockett story is not confined to the boys and girls of this country. Last Thursday the gentleman from Texas [Mr. DIES], speaking in the well of the House, referred to that story and drew certain lessons from the record and career of this great American when he served as a Member of the Congress more than 100 years ago. Davy Crockett is generally understood to have been a native of the State of Tennessee. A mere statement of that fact, however, does not tell the entire story. When Davy Crockett was born on August 17, 1786, the State of Tennessee was not in existence. It was then a part of the territory which comprised the State of North Carolina. So it can fairly be said, Mr. Speaker, that Davy Crockett was a Tar Heel born, although we will have to concede that he was not a Tar Heel bred, and when he died he was not a Tar Heel dead. But we take great pride in the fact that he was born a resident of our State.

Mr. PRIEST. Mr. Speaker, will the gentleman yield?

Mr. JONAS. I yield.

Mr. PRIEST. I appreciate that what the gentleman has said is historically correct; but in view of the popularity of the present song, the record of history probably will show that he was born on a mountaintop in Tennessee.

HOOVER HAMBURGER FORMULA

If we use the Hoover hamburger formula for determining the savings in our national budget because of the Hoover Commission reports, we would say that instead of the Commission saving money, it is costing 10 percent more or \$6 to \$7 billion a year. These figures would be arrived at by arbitrarily considering that all of the Hoover Commission recommendations cost the Government 10 percent more by using the Post Office case as an example. Mr. Hoover arrived at the 60-year supply of hamburger for the Navy by the use of a trick formula that was no more deceitful and misleading than this one. It left the impression that the Navy had enough hamburger meat for 60 years. The truth was it had about 800,000 pounds, which would not be enough to last the Armed Forces over 1 day. After all, 800,000 pounds of meat is the equivalent of only 400 good-sized steers. It is inconceivable to think that a quantity of meat the size of 400 steers, that could be corralled and kept on one part of the White House grounds, would be sufficient to last the great Navy or the Armed Forces 60 years. This is a sample of the ridiculous manner in which the high-powered public relations firms employed by the Hoover Commission have overdramatized and misrepresented the work and accomplishments but hid and submerged the devastation of the Commission.

HORRID EXAMPLES EXPECTED

March 10, 1954, Chairman Hoover stated in a speech at the National Press Club:

All the task forces are now in the midst of our inquiries and no horrid examples are ready for publication and no fine recommendations have as yet been put on paper; however, we are learning a lot.

At that time, Mr. Hoover expected his public relations task force to be able to disclose horrid examples.

An agency of the Congress would normally be expected to advise Congress first of any horrid examples and make sure that Congress was not reflected upon by overdramatization and also for the purpose of giving Congress an opportunity to correct any valid mistakes.

ADMITTEDLY A PRESSURE GROUP

The citizens committee for the Hoover reports in January 1955 published a document which was widely distributed to schools and universities in which it was stated:

For the first time in United States history, a pressure group has been formed to bring about a general reorganization. The citizens committee has kept the Commission's recommendations before the country and has not allowed them to be forgotten as such efforts have been in the past.

ALL CONTRIBUTIONS TO THE GROUP ARE
ADVERTISED AS TAX EXEMPT

It will be noticed the citizens committee admits it is a pressure group and its activities clearly disclose that it should be registered under the Lobbying Act. In the same booklet, it is stated that the Commission's influence was not limited to the national level. In 33 States and 2 Territories, little Hoover

commissions have been established since 1949.

It was also stated in this booklet:

The citizens committee has operated as a pressure group against pressure groups.

DID MEMBERS TAKE OATH AS REQUIRED BY LAW

On March 29, 1955, I addressed a letter to Mr. John B. Hollister, Executive Director of the Commission on Organization of the Executive Branch of the Government, in which I asked for certain information. It is as follows:

Please advise me if the 12 members of the Hoover Commission take an oath as required by public officials to support the Constitution and laws of the United States, etc. Also please advise if the members of the staff likewise take such an oath.

If you will give me this information right away, I shall appreciate it very much.

On March 29, 1955, Mr. Hollister replied to my letter as follows:

I acknowledge receipt of your letter of today's date. All 12 Commissioners took the oath of office the day of the first meeting of the Commission on September 29, 1953. This oath was administered by Associate Justice of the Supreme Court Burton. All the employees of the Commission take an oath of office before beginning their duties.

On March 30, 1955, I sent Mr. Hollister another letter, which follows:

I received your letter and thanks for the information about the 12 Commissioners and the employees of the Commission taking the oath of office.

Please advise me if the members of the task forces have also taken the oath and if their employees have likewise taken the oath.

Mr. Hollister's reply to my letter dated March 30, 1955, follows:

I acknowledge receipt of your letter of today. All members of the task forces who draw any pay have taken an oath of office. Those who accept no pay are not asked to take an oath.

The task forces have no employees of their own. All staff who work with them are employees of the Commission.

Again on April 4, 1955, I wrote Mr. Hollister. My letter follows:

Breakdown of Commission personnel

	Sept. 30, 1954	Nov. 30, 1954	Dec. 31, 1954	Jan. 31, 1955	Feb. 28, 1955	Mar. 31, 1955
Commissioners.....	12	12	12	12	12	12
Commissioner's assistants and secretaries.....	21	23	23	23	28	28
Staff personnel.....	28	30	28	34	37	39
Task force members with compensation.....	84	87	84	84	53	52
Task force members without compensation.....	77	78	77	77	92	83
Task force assistants and clerical personnel with compensation.....	213	211	211	152	149	124
Task force assistants without compensation.....	90	103	89	83	43	25
Total.....	525	544	524	465	414	363

The last letter I sent to Mr. Hollister, dated April 29, 1955, follows:

In your letter of April 13, 1955, you gave me information concerning the breakdown of Commission personnel. However, it does not give me the breakdown as to each Task Force.

I wish you would furnish me by Monday, May 2, at noon, the following information:

1. The name of each Task Force.
2. The number of members in each Task Force with compensation.
3. The number of members in each Task Force without compensation.

If you will give me a list of the members of the task forces who have drawn pay and who have taken the oath of office, as well as the list of those who have accepted no pay and, therefore, have not taken the oath, it will be appreciated very much.

If you can send it this week, please mail it to me here in Texarkana at Post Office Box 868, and oblige.

Mr. Hollister replied to my April 4, 1955, letter on April 8, 1955, as follows:

I acknowledge receipt of your letter of April 4, last. I could easily give you the number of task force members who have drawn pay and taken an oath of office and also the number who have not. I am somewhat loath to give you the individual names, for I do not believe the Commission would feel that it should make any public distinction between the man who because of his own personal means, the willingness of his company to pay his expenses or his own excess of patriotic zeal does his work without remuneration and the man who does the work and draws all or part of what the Congress authorized him to be paid for his work.

I should be glad to discuss the matter informally with the members of the Commission if you would care to have me do so.

On April 11, 1955, I again wrote Mr. Hollister, and my letter follows:

Although I do not agree that the reason you have given is sufficient to justify withholding the information I have requested, I wish you would furnish me the number of members who served without pay or compensation, and therefore did not take the oath, and also the number of members who were paid and took the oath. After I get this information, I shall be very glad to talk to you about the other information, if I desire to pursue the matter further.

If you will furnish it to me right away, it will be appreciated.

The reply which I received from Mr. Hollister, dated April 13, 1955, is as follows:

I acknowledge receipt of your letter of April 11 last and hasten to enclose you a sheet which is attached to a progress report I am making to the Commission. This gives the breakdown of Commission personnel for September 30, 1954, and for each month, beginning November 30, 1954. This will give you the information you have requested.

If you will please furnish this information to me by the time mentioned, it will be appreciated very much.

Mr. Hollister's reply to my April 29, 1955, letter, dated May 2, 1955, is as follows:

I acknowledge receipt of your letter of April 29, which unfortunately did not reach me until after 10 o'clock this morning.

However, I am now sending you a statement along the lines you have requested.

Breakdown of task force members

1. Budget and Accounting Task Force:	
a. Number of members with compensation.....	0
b. Number of members without compensation.....	7
Total.....	7
2. Intelligence Activities Task Force:	
a. Number of members with compensation.....	3
b. Number of members without compensation.....	3
Total.....	6
3. Legal Services and Procedure Task Force:	
a. Number of members with compensation.....	9
b. Number of members without compensation.....	5
Total.....	14
4. Lending Agencies Task Force:	
a. Number of members with compensation.....	1
b. Number of members without compensation.....	9
Total.....	10
5. Medical Services Task Force:	
a. Number of members with compensation.....	15
b. Number of members without compensation.....	0
Total.....	15
6. Overseas Economic Operations Task Force:	
a. Number of members with compensation.....	1
b. Number of members without compensation.....	8
Total.....	9
7. Paperwork Management Task Force:	
a. Number of members with compensation.....	0
b. Number of members without compensation.....	5
Total.....	5
8. Personnel and Civil Service Task Force:	
a. Number of members with compensation.....	4
b. Number of members without compensation.....	5
Total.....	9
9. Procurement Task Force:	
a. Number of members with compensation.....	3
b. Number of members without compensation.....	10
Total.....	13
10. Real Property Task Force:	
a. Number of members with compensation.....	5
b. Number of members without compensation.....	2
Total.....	7
11. Subsistence Services Task Force:	
a. Number of members with compensation.....	0
b. Number of members without compensation.....	15
Total.....	15

Breakdown of task force members—Con.

12. Use and Disposal of Surplus Property Task Force:	
a. Number of members with compensation.....	2
b. Number of members without compensation.....	7
Total.....	9
13. Water Resources and Power Task Force:	
a. Number of members with compensation.....	21
b. Number of members without compensation.....	5
Total.....	26
14. Committee on Business Organization of the Department of Defense:	
a. Number of members with compensation.....	5
b. Number of members without compensation.....	13
Total.....	18
Total number of members with compensation.....	
Total number of members without compensation.....	
Grand total.....	

LAW ABOUT VOLUNTARY SERVICE TO GOVERNMENT

Title 31, section 665, of the United States Code, 1946 edition, contains the following excerpts:

Nor shall any department or any officer of the Government accept voluntary service for the Government * * * except in cases of sudden emergency involving the loss of human life or the destruction of property.

At the end of the paragraph, there is a heavy penalty for its violation.

The SPEAKER. The time of the gentleman from Texas has expired.

Mr. BOLLING. Mr. Speaker, there being no further requests for time, I move the previous question.

The previous question was ordered. The resolution was agreed to; and a motion to reconsider was laid on the table.

SPECIAL ORDER GRANTED

Mr. BAILEY asked and was given permission to have the special order granted him today put over until tomorrow.

EXTENSION AND FINAL LIQUIDATION OF THE COMMISSION ON ORGANIZATION OF THE EXECUTIVE BRANCH OF THE GOVERNMENT

Mr. McCORMACK. Mr. Speaker, I ask unanimous consent for the immediate consideration of the bill (S. 1763) relating to the extension and the final liquidation of the Commission on Organization of the Executive Branch of the Government.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the request of the gentleman from Massachusetts?

There was no objection.

The Clerk read the bill, as follows:

Be it enacted, etc., That section 9 (b) of the act entitled "An act for the establishment of a Commission on Governmental Operations," approved July 10, 1953 (67 Stat. 142),

is hereby amended (1) by striking out "May 31, 1955" and inserting in lieu thereof "June 30, 1955," and (2) by adding at the end thereof the following new sentences: "Notwithstanding the foregoing provisions of this subsection, the chairman of the Commission shall have charge of the final liquidation of the affairs of the Commission after June 30, 1955, including the printing of reports, the payment of bills, the transfer of records and documents to the National Archives, and the disposition of furniture and other equipment of the Commission. The Chairman of the Commission shall designate such members of the staff of the Commission as he deems necessary for these purposes. Such liquidation shall be completed within a period of not to exceed 90 days after June 30, 1955, and the funds of the Commission shall remain available for necessary expenses during such period."

The bill was ordered to be read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

Mr. DURHAM. Mr. Speaker, I ask unanimous consent to take from the Speaker's desk the bill (H. R. 2581) to promote the national defense by authorizing the construction of aeronautical research facilities by the National Advisory Committee for Aeronautics necessary to the effective prosecution of aeronautical research, with Senate amendments thereto, and concur in the Senate amendments.

The Clerk read the title of the bill.

The Clerk read the Senate amendment, as follows:

Page 2, strike out lines 8, 9, and 10, and insert "Component research facility for nuclear propulsion, improvements to an existing transonic tunnel, additions to two existing laboratory buildings, repairs and modifications to utility installations, and acquisition of not to exceed 500 acres of land, \$8,760,000."

Page 2, line 18, strike out "\$8,450,000" and insert "\$13,300,000."

Page 2, line 20, strike out "\$8,450,000" and insert "\$13,300,000."

The SPEAKER. Is there objection to the request of the gentleman from North Carolina?

There was no objection.

The Senate amendments were concurred in; and a motion to reconsider was laid on the table.

RESEARCH IN THE DEVELOPMENT AND UTILIZATION OF SALINE WATERS

Mr. ENGLE. Mr. Speaker, I move that the House resolve itself into the Committee of the Whole House on the State of the Union for the consideration of the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters.

The motion was agreed to.

Accordingly the House resolved itself into the Committee of the Whole House on the State of the Union for the consideration of the bill H. R. 2126, with Mr. KARSTEN in the chair.

The Clerk read the title of the bill.

By unanimous consent, the first reading of the bill was dispensed with.

Mr. ENGLE. Mr. Chairman, I yield myself 15 minutes.

Mr. Chairman, as far as I know, everyone is for this bill, and the only reason it is here on the floor today under a rule is because it authorizes the appropriation of an amount of money in excess of that which would make the bill proper for consideration on the Consent Calendar.

Mr. Chairman, the bill was favorably reported on by the Department of the Interior. The Department of the Interior report was favorably cleared by the Bureau of the Budget. The bill was unanimously voted out of the Subcommittee on Irrigation and Reclamation and was unanimously voted out of the House Committee on Interior and Insular Affairs. The rule granted on this measure took up something less than 10 minutes of consideration by the Committee on Rules.

The bill before you, H. R. 2126, is co-authored by the gentleman from Ohio [Mr. Bow]. Its predecessor act of 1952, which this bill amends, was coauthored by the gentleman from California, Mr. PHILLIPS, and Senator CASE, formerly a Member of this body.

This bill, Mr. Chairman, extends the operation of the Saline Water Act of 1952. The Saline Water Act of 1952 provided for research in the development and utilization of saline waters by providing for federally financed contracts to carry out the necessary scientific and engineering research to accomplish the desalting of sea water, saline and brackish water. In setting up that legislation in 1952, which carried with it an appropriation of \$2 million, and which has since that time been in operation, we were very careful not to provide for the Department of the Interior setting up a large scientific agency for the conduct of this research but rather for the coordination and correlation of the efforts of other Government agencies, of private industry, and of educational institutions.

The Interior Department was directed to carry out the research through contracts with private industry, with educational institutions, as well as to correlate the efforts of other agencies of the Government, such as the Navy Department, which had already gone into a good deal of experimentation in this field. The first program was to last a period of 5 years and, as I say, carried an appropriation of \$2 million.

Because these research contracts have to be executed some time prior to the end of the program, the last contract will have to be wound up by December of 1955 unless this act is extended. As a consequence, we are here today asking to extend this research program for another 5 years and to add \$4 million to the initial appropriation.

The results of the investigation and research up to the present time have convinced everybody connected with this program—the Interior Department, our committee, and the research scientists—that it should be continued. When this research program started, it cost between \$400 and \$500 an acre-foot as

a maximum to reduce sea water to a condition which would make it fit for municipal, industrial, or agricultural use. The Interior Department set up as its initial goal reducing the cost to \$120 an acre-foot, which is about the top that can be paid for municipal use, and \$40 on brackish water for irrigation use.

The Interior Department informs us, and the representatives of the Department in their testimony before our committee said, that they are now within range of achieving those objectives; that is, of being able to reduce sea water—to reduce the salt in sea water—at a cost of \$120 an acre-foot and brackish water for irrigation use to a cost of as low as \$40 an acre-foot. I do not say that they have accomplished that yet, but they are within sight of that goal at the present time, and if they can continue with the same progress they have shown since this program started in 1952, it is a certainty that sea water will be made available at a cost for industry and municipal use that they can afford, and that brackish water—large quantities of which exist throughout the western part of the United States and other parts of the world—will be made available to agriculture at as low as \$40 an acre-foot.

The present bill extends the period of this research for 5 years. It allows an additional \$4 million. The \$6 million mentioned in the bill is the total of the \$4 million plus the original \$2 million. It allows the use of approximately a half-million dollars for research in Federal laboratories. We did not permit that in the original act because we did not want the Federal Government getting into the field of research. We wanted that done by contract. But now we are getting to the stage of research where it is necessary for the Federal Government to evaluate the progress made by private industry and by the various educational institutions. Of course, each thinks his own is a little better and therefore the program needs some impartial group in the Federal Government to make a comparison of the various processes which are presently in the works. Half a million dollars is allowed out of the \$4 million for that purpose. That comes out of a limit of \$1½ million which the Department of the Interior can use for administrative purposes and for pilot-plant operation.

In short, we have strictly limited the amount of money that can be spent administratively or that the Government itself can spend on direct research. The rest has to be done in contracts such as has occurred in the program up to the present time.

Mr. Chairman, this is a research program that can have a tremendous and historic importance for the entire world. It can change the economics of the coastal areas of our country and the arid areas in the North American Continent. In addition, it can make great changes throughout the entire world. There are areas in the world today whose living conditions would be completely revolutionized if they could use sea water at a price which is economic.

This is the kind of research, in my opinion, that the Congress of the United

States and the Federal Government should be willing to spend money on. It is the same kind of thing we did, for instance, on polio, except in a different field.

Whenever this kind of research is successful, it adds tremendously to the wealth and the growth of not only our own people but people throughout the entire world. When we consider the revolutionary effects that a successful conclusion of this research program may have, the money we are asked to put up for this research is a mere pittance, a small amount of money, indeed.

Mr. Chairman, I know of no opposition to this bill at the present time. It has a good purpose. It is sponsored and coauthored by men on both sides of this aisle, and I hope it will be passed without any difficulty.

Mr. GROSS. Mr. Chairman, will the gentleman yield?

Mr. ENGLE. I yield to the gentleman from Iowa.

Mr. GROSS. As I understand, this provides for a spending program of \$6 million over a 10-year period. Is that approximately correct?

Mr. ENGLE. That is approximately correct. There is \$2 million already appropriated, which is being used and which has been mostly used up. This adds another \$4 million and extends the time 5 years, which would add up to what the gentleman says, \$6 million over 10 years.

Mr. GROSS. What are the States which will be directly benefited by this program? What are the States doing? What contribution are they making to this experimentation? How much money are they spending?

Mr. ENGLE. It is hard to say just what States will profit more than others.

Mr. GROSS. The gentleman will agree with me that California, for instance, will profit more than the State of Iowa?

Mr. ENGLE. Not necessarily. If Iowa has brackish water that can be cleaned up by this process and made fit for human consumption or irrigation, Iowa might profit, too.

Mr. GROSS. Of course, we do not irrigate in the State of Iowa. Is the State of California, for instance, spending any money today on this sort of experimentation?

Mr. ENGLE. Not to my knowledge.

Mr. GROSS. None of the other States, then?

Mr. ENGLE. Not to my knowledge. There is a bill pending presently in the State legislature of California to authorize the State of California's participation in this program, but I cannot tell the gentleman that the bill has passed. It has been introduced and is pending in the present session.

Mr. GROSS. I may say to the gentleman that I think it is worthy experimentation, but I still think that more of the States which would be most directly affected ought to be carrying some part of the load for this experimentation.

Mr. ENGLE. I agree with the gentleman that these States all ought to try to help themselves, but if we waited around to get them all together and get

them all in it, it would be a long time before anything was done.

Mr. MASON. Mr. Chairman, will the gentleman yield?

Mr. ENGLE. I yield to the gentleman from Illinois.

Mr. MASON. What does the phrase "acre foot" of water mean? Does that mean 12 inches of rainfall over an acre of ground?

Mr. ENGLE. It means an acre-foot of water, which is an acre of ground a foot deep in water.

Mr. MASON. That would be 12 inches of rainfall on an acre of ground.

Mr. ENGLE. That is correct, if it rains.

Mr. MASON. That costs \$40 an acre to change brackish water into water that can be used for irrigation purposes, if they accomplish their objectives.

Mr. ENGLE. They are aiming at \$120 an acre-foot for municipal water and \$40 an acre-foot for irrigation water. They think they can make it. They say they are within range of those targets now. Forty dollars an acre-foot is a lot, by the way, for irrigation, but in some areas of California they do pay that much. On the other hand, with reference to municipal water where it is used for municipal purposes and industrial purposes, that can rather easily carry \$120 an acre-foot.

Mr. PHILLIPS. Mr. Chairman, will the gentleman yield?

Mr. ENGLE. I yield.

Mr. PHILLIPS. I just want to add this brief statement in reply to the gentleman from Iowa. The gentleman from California [Mr. ENGLE] and myself would both be very much in accord with the gentleman's idea that the States should enter into this cooperatively, but up to the present time there has been no opportunity for the States to spend money because the work has been experimental and has to be carried on at a different level. The gentleman from California should not overlook the fact that the University of California has been spending money and working on this experimentally—and that is State money.

Mr. ENGLE. That is true, and I should add that some of the Department of Interior contracts have been with the University of California and the Federal Government, therefore, has entered into a sort of partnership arrangement with the university.

Mr. UDALL. Mr. Chairman, will the gentleman yield?

Mr. ENGLE. I yield.

Mr. UDALL. Would the distinguished chairman of the Committee on Interior and Insular Affairs agree with me that this is a broad and national program? It is not a regional program in any sense. Of the 24 contracts that have been let to date, the people doing the contracting are spread all over the country in places like Massachusetts at Yale University, Pennsylvania State College, Texas A. and M., and some of the field testing, for instances, has been done in inland States such as the States of Arizona and South Dakota, and the State adjacent to that of the the gentleman from Iowa. So would the chairman

agree with me that it is a broad national program from which all States and all areas of the country will benefit.

Mr. ENGLE. That is correct. In recent years metropolitan areas on the cost line in the East as well as the West have found out that they had to turn down industries because they did not have enough fresh water to run those industries.

Mr. WIER. Mr. Chairman, will the gentleman yield?

Mr. ENGLE. I yield.

Mr. WIER. May I ask a question, Mr. Chairman, which touches upon the response of the gentleman from Arizona? As I understand it, there are 1 or 2 pilot plants that have spent all of their time on this work. The gentleman from Arizona pointed out that universities throughout the Nation have been experimenting in this field and carrying on the work on their own initiative. How many pilot plants have been spending full time on this objective?

Mr. ENGLE. There are no pilot plants currently in operation. They have not got up to the point yet where they can go into pilot-plant operation. That is what this bill provides for. This bill provides money for pilot-plant operation. It provides half a million dollars. Therefore, under this legislation, there will be such pilot-plant operation.

Mr. WIER. How do you distribute this \$4 million in the future? Is it distributed to the universities or is there what I term a pilot plant where the work is being carried on? Do you distribute this to the various institutions?

Mr. ENGLE. Not except under the contracts as they were made with the Department of the Interior to carry on various phases of this research. Some of it is being carried on in one place and some in another, but on the pilot-plant operation, it is contemplated that the Department of the Interior itself will do that.

Mr. ASPINALL. Mr. Chairman, will the gentleman yield?

Mr. ENGLE. I yield.

Mr. ASPINALL. In answer to our colleague, the gentleman from Minnesota, there are three stages in this sort of work. First, the research laboratory, which has been taken care of up to this time to a certain extent. Next will be the pilot plant of which the gentleman speaks. This bill would provide for the establishment of one pilot plant, as we were advised. Then the demonstration plants, which would come later, and which would more than likely be the responsibility of the industry itself.

Mr. ENGLE. Mr. Chairman, I reserve the balance of my time.

Mr. MILLER of Nebraska. Mr. Chairman, I yield myself 5 minutes.

Mr. Chairman, the gentleman from California [Mr. ENGLE] has explained very thoroughly the objectives of this saline water bill. It has been before the Congress for several years. It is a research bill, and this bill provides some additional funds which can be allocated to more than a score of universities for carrying on research work.

Now, what is research work? It is nothing more than asking questions of

nature and trying to find the answer. Research has been carried on in many fields. In the medical field many diseases have yielded to research. In the field of animal diseases, the foot-and-mouth disease laboratory is being completed on Long Island, and the cause, cure, and treatment of foot-and-mouth disease in animals is being studied.

But here is a piece of legislation which says, Can we feasibly convert salt water into potable water? Water supplies of many communities and many cities are being jeopardized because of long-continued droughts. Some of those areas are along the seacoast where they have access to ocean water. If salt water can be made into potable water with a limited amount of expense, it should be carried on.

After all, water is worth what it costs when you are thirsty. Water is worth what it costs when you need it on irrigated land.

Here is a proposition that has for its purpose carrying on research and asking questions of nature to just find out how our salt water can be made into potable water.

Mr. BAILEY. Mr. Chairman, will the gentleman yield?

Mr. MILLER of Nebraska. I yield.

Mr. BAILEY. Does the legislation here proposed parallel in great measure the legislation authorized by the Congress some years ago for the study of liquid fuels?

I just had the pleasure of attending the dedication of a pilot research plant for the study of liquid fuels located by the Bureau of Mines in connection with the University of the State of West Virginia at Morgantown. I assume what you are trying to do here is to handle this problem through a number of years of research, and that will require, as we have built in Morgantown, a pilot plant to carry on the necessary demonstrations. It is practically the same type of legislation, is it not?

Mr. MILLER of Nebraska. That is correct. It is research similar to your oil research, and also wood research, and others that have been carried on. As I understand it, when the answers are found through the universities that have been working on the problem during the years, the University of California and other universities, then it is made available to private industry. The Government is merely an umpire, guaranteeing that there will be fair play. The Government is an umpire to insure that when these findings are made they can be made available to people who can then in turn make application of the facts found through research. There are great possibilities in this legislation, as there are in other research problems, such as the handling of oil shale in Colorado. I think we have made great progress, because we have billions of barrels of oil stored up in those shales, and now we know how to convert some of that oil into industry. I am satisfied that the experiments carried on in South Dakota and in Arizona, where pilot plants working on brackish water on a small scale have been carried on, have given us some valuable information.

I would hope that the Congress would pass this legislation and make the knowledge available to those who can use it in research.

Mr. ASPINALL. Mr. Chairman, will the gentleman yield?

Mr. MILLER of Nebraska. I yield.

Mr. ASPINALL. I think attention should be called to the method by which the correlation of research people and private industry is cared for in this legislation. When the program was instituted, the Secretary of the Interior appointed a group of nine eminent leaders, educational, scientific, and industrial organizations to provide him with the necessary information as to how the program should be carried on. Those gentlemen have been working since the institution of the program for no remuneration at all and very slight travel expense. That in itself tends to tie the everyday working operations right in to the area where the research scientists and investigators may later on make use of the information.

Mr. MILLER of Nebraska. I thank the gentleman.

Mr. WIER. If the gentleman will yield, may I suggest in connection with this venture—that the gentleman from Iowa, who raised the question about what Iowa would get out of it, that if you can get alkali out of the water in South Dakota and Nebraska that will be a great accomplishment.

Mr. MILLER of Nebraska. Mr. Chairman, I yield 7 minutes to the gentleman from Arizona [Mr. RHODES], a member of the committee.

(Mr. RHODES of Arizona asked and was given permission to revise and extend his remarks.)

Mr. RHODES of Arizona. Mr. Chairman, I think the question has been very well covered by the distinguished gentleman from California and the distinguished gentleman from Nebraska. I would just like to make a few comments.

This, in my opinion, is a very good way for research to be handled, under Federal auspices; taking advantage of existing laboratory and university facilities, on a contract basis and then making the facts available to States, irrigation districts, cities, and individuals for further development of the program.

Another thing I would like to bring to the attention of the committee, Mr. Chairman, is the fact that this bill is not just merely one dealing with the purification of sea water: There is a lot of water in the United States of America today which is not potable because of the fact that it has a high saline content, and it is not confined to the waters which are in the oceans near our coasts.

In Arizona we have today a pilot plant operating on a well which belongs to the Buckeye Irrigation District. It is being operated under a contract through this very program. The water which comes from that well has a salinity content so high that it is very difficult if not impossible to use the water for the irrigation of crops. Through the operation of this plant at the present time the saline content of the water has been reduced to the extent that it may now be used for crops, and the whole area certainly will benefit because of that.

I want to mention also a problem that is a corollary to the problem of taking the saline content out of water. That is the disposal of the waste material. We have not yet been able to discover a means of disposing of this waste material which is taken from water in the desalinity process. That is a subject which must be gone into either in this program or in another separate program before we will really have any practical means of reducing the salinity of this water.

Furthermore, this is a universal program and not one which applies to one State or a group of States. I daresay that every State in the Union has some water which has too high salt content to be potable. I would call attention, Mr. Chairman, to the fact that a few years ago the great State of New York was very short of water; in fact, water was being rationed and people were being urged to repair leaking faucet washers so water would not be wasted by dripping from faucets. It was a very serious situation.

So the shortage of water is not a phenomenon of the arid West; it exists throughout the United States today. If the predictions of certain scientists are true we may well be entering upon a dry cycle in the world's history. If this be true, then certainly the Federal Government should do everything it can to attack and master this problem, which extends beyond State boundaries.

We have in many instances gone into programs which should have been conducted by the States and not by the Federal Government, but it was found necessary for the Federal Government to get into it in order to get the program off the ground to supply a need which exists and which is fairly universal throughout the Nation. I would consider the program of vocational rehabilitation to the physically handicapped to be in that category.

Certainly the primary responsibility for that program was on the State and local governments but where a need exists the Federal Government participates initially to get the program started, and provide the spark to get other echelons of government into the field. I hope the Congress in its wisdom sees fit to pass this legislation to give the States some impetus to get studies going in this field of endeavor. There is a great deal of national interest involved, since the need for potable water transcends State lines. It is hoped, by this research, that we can furnish States, irrigation districts, and private citizens of the country the first answers to the difficult questions involved, so they may go on from there to develop a practical system for removing salinity from water.

In the hearings before the Committee on Interior and Insular Affairs it was brought out very forcefully by Mr. Shepard T. Powell, that more than one system of taking this water and purifying it is needed. A system which works well in New York might not work out in Arizona or in California. So it becomes necessary that more than one system be adopted.

As far as means of furnishing power for the project are concerned, you will

find that in the Western States where the sun shines without being impeded by clouds or trees too much, solar rays may be adaptable for the use of this particular project. In other States, of course, you will find that nuclear energy may be used at some time in the future. The whole program is just as broad as the scientific development of the United States in the last few years has been broad.

In order to cut the cost of this water down to where it can be used for agriculture, for industry, and for municipal purposes, a few more years of experimentation are very definitely indicated.

I hope, Mr. Chairman, that the House will pass this bill unanimously.

Mr. MILLER of Nebraska. Mr. Chairman, I yield 5 minutes to the gentleman from Ohio [Mr. BOW], who on several occasions has been the author of similar bills.

(Mr. BOW asked and was given permission to revise and extend his remarks.)

Mr. BOW. Mr. Chairman, the field has been amply covered in reference to this bill. I should like to say I am very happy to have been coauthor of the legislation with the distinguished gentleman from California [Mr. ENGLE], and I compliment him for the manner in which he has handled this bill both in the committee and in having it brought to the floor of the House at this time for consideration. This is one of the most important pieces of legislation that has been considered by this Congress and previous Congresses or will be considered by this Congress.

Coming from Ohio, I have had several ask me whether we have salt water out in Ohio. We do not have. However, I have traveled throughout my country and I have seen a serious situation in many States. I believe that the people of Ohio will want to see this situation remedied. It will be to their benefit both directly and indirectly.

Mr. Chairman, I should like to point out one thing that I do not believe has been covered. Private enterprise, private industry, throughout the United States has been working on this question for many years. Through this legislation we will be able to correlate the experiments being made by large industrial plants so that their plans and ours will be worked together and information distributed among those who are interested in the development of this system. Not only are the universities doing experimental work but private enterprise at its own expense through money that does not come from this bill or from the taxpayers is working to perfect various methods of desalting water.

It has been suggested that this is important to New York, and it certainly is. It is important in other ways, too. We have found in some cases that a system of desalting water purifies the water of atomic contamination. So if we develop the process we are working on, it can be used as a standby in those areas where water is taken from lakes and from reservoirs and purified, eliminating the effects of atomic fall-out or atomic contamination.

Looking further into the future in reference to the question of fresh water, it

seems to me we are making a contribution not only to our own country but to the world. Those who have traveled through the Middle East can readily see the possibilities. Take, for instance, Egypt, with her great areas of fertile soil but little good water, and plenty of hungry people. The development of this area may be possible through the installation of saline water conversion plants, thereby enabling water to be put on the land. We must also look forward, I think, within the very near future to atomic reactors which will be used in conjunction with this type of program. So we will be making a contribution not only to our own country but to the peoples of the world. We are not alone in this. Other nations are carrying on research. I think there is one nation, perhaps, that has gone a little ahead of us in the past in the development and perfection of these processes, but we are now working with the other nations of the world in this same study. It is so important not only to us but to others. We can think of our own possessions, the Virgin Islands, Puerto Rico, Guam, and other places, where it is so necessary to bring fresh water onto their lands in order that they may develop.

Mr. Chairman, I sincerely hope that this legislation will pass and that it will have the full support of the Congress.

Mr. ENGLE. Mr. Chairman, I yield 5 minutes to the gentleman from California [Mr. ROOSEVELT].

Mr. ROOSEVELT. Mr. Chairman, I come from a district in California, Los Angeles, which is vitally interested in the whole problem of water and particularly, I might say, Colorado River water at the present time. I think it would be well to make clear that our interest in this bill does not mean that the Members from California are any less interested in Colorado River water. Actually, I think there is very evident already conclusive evidence that the need for water in southern California will be such that Colorado River water alone will not fulfill our needs and that the processes which are under investigation and which will be conducted, I hope, under this bill will be needed if that area of the country is to continue to grow.

I think, however, it is also important to point out that it is possible, of course, if this process is eventually successful, that at some future time there can be less dispute, perhaps, or less opposition to sharing other available water supplies.

Mr. Chairman, I would very much appreciate the opportunity of asking the distinguished chairman of the committee, the gentleman from California [Mr. ENGLE], a question in relation to the coordination of this program between the Department of the Interior and the Atomic Energy Commission. As I am sure all of us realize, the success of this program on a commercial basis is largely dependent on whether or not low cost power can be had in sufficient quantities to make the process at a cost low enough to make it commercially feasible. I wonder whether there is any program that the committee knows about at the present time for coordination or cooper-

ation between the Atomic Energy Commission and the Department of the Interior for the development commercially in various areas so that the two can be tied together.

Mr. ENGLE. Mr. Chairman, if the gentleman will yield, I would be delighted to have the gentleman read the statement on page 40 which appears in the report on the research program in our hearings on this matter before the committee which deals with the very subject matter that he has mentioned. The power or the heat to carry out the desalting process is the crucial element. Therefore, if atomic energy, for instance, could be used in generating the necessary heat or power to carry on this type of work under one or another of the processes which are being studied, then the opportunities of success are very much better. I assure my friend from California that the testimony indicates that there is close collaboration between the people in the Department of the Interior carrying out this program and its relationship to the development of atomic energy in the field of heat and in the field of power, because those are the two that are so essential to the success of this program. So, in answer to the gentleman's inquiry, specifically the answer is yes, that that coordination is in progress and will be intensified.

Before I quit responding to the gentleman's inquiry, I would like to add my endorsement to what he has said with respect to whether or not this program has any particular applicability to the water claims of southern California on the Colorado River and to say to him that his statement in respect to that matter is exactly right. As a matter of fact, southern California is going to run out of water if it gets all the water that it claims on the Colorado River in between 13 and, as a maximum, 19 years, according to the information that I have. As a consequence, they have to get the water and they will either have to get it out of the sea or go over the Tehachapi Mountains and bring it down from northern California, from one of the rivers up there.

This does not affect southern California's position or the claims of the city of Los Angeles or any of the southern California water agencies upon the Colorado River whatsoever. I am glad the gentleman brought that up, so we can make it perfectly plain. The same can be said with reference to Arizona. It would not affect its claims, either, on the Colorado River.

Mr. RHODES of Arizona. Mr. Chairman, will the gentleman yield?

Mr. ROOSEVELT. I am glad to yield to the gentleman from Arizona.

Mr. RHODES of Arizona. I would dislike to second the last remark of the distinguished chairman of the committee. Of course, this has nothing to do with the claims of either State regarding Colorado River water. I would agree with the chairman when he says that if southern California continues to grow at its present rate, there would not be enough water in the Colorado River to take care of its needs. I would say that would be equally true of the State of Ari-

zona. This is a project which is certainly necessary for the future. I would like to say to my good friend from California [Mr. ROOSEVELT] that I am looking forward to the day when we can reverse the pumps on the metropolitan water aqueduct and bring purified sea water back inland into the State of Arizona.

Mr. ROOSEVELT. Mr. Chairman, I want to thank the gentleman from Arizona [Mr. RHODES] and I join in his hopeful statement. I hope it will not be in the too far distant future. I thank the chairman of the committee very much for his very interesting statements.

I would like to point out for the record that at the present moment the Atomic Energy Commission is selling heat or energy generated by a reactor unit set up by the North American Aviation Co. Part of this heat has been contracted for, I believe, by the Southern California Edison Co.

I sent a telegram on Friday to the Los Angeles Bureau of Water and Power suggesting—as a public body I believe they have preference to whatever may be left over—that they should ask for the opportunity to get the balance of that generated heat. I hope that they will coordinate it, if it is possible to do so, under this law with a coordinated pilot plant in order that the two might go forward together at this very critical place where I think we need it so badly.

I certainly hope this bill will pass.

Mr. MILLER of Nebraska. Mr. Chairman, I yield myself 2 minutes and then intend to yield to the gentleman from California [Mr. PHILLIPS].

I do this because I am pleased to see the gentleman from California [Mr. ROOSEVELT] bring up the question of the Colorado River and the possibility of desalting the water from the Pacific Ocean so that it may be brought back to Arizona. That would be an interesting process. But I think it is not beyond the realm of possibility under a properly conducted saline water research program.

With reference to the North American Aviation Co., they will probably shortly be given a contract to build an atomic reactor plant in the State of Nebraska using sodium graphite as the reactor. That is now in the works.

In connection with that, I would like to brag a little about the State of Nebraska. California is talking about some 15 or 16 million acre-feet of water that they have in the Trinity River. Nebraska has in its sand hills more than 600 million acre-feet of water, an adequate supply that needs only pumps. And we have 10,000 or more pumps tapping that underground supply of water. There is ample water to supply an atomic-energy plant. So when the North American aviation group builds their sodium graphite reactor plant in the State of Nebraska, all they need to do is dig a hole in the ground and the water will run out. There will be plenty of water that will not need desalting, good, fresh water, which I presume comes from Rocky Mountain area through underground streams before it reaches Nebraska.

Mr. Chairman, I yield 5 minutes to the gentleman from California [Mr. PHILLIPS].

[Mr. PHILLIPS addressed the Committee. His remarks will appear hereafter in the Appendix.]

Mr. MILLER of Nebraska. Mr. Chairman, I have no further requests for time on this side.

Mr. ENGLE. Mr. Chairman, I yield such time as she may desire to the gentlewoman from Missouri [Mrs. SULLIVAN].

CIO SPOKESMAN URGES QUADRUPLED OF FUNDS
FOR SALINE WATER RESEARCH

Mrs. SULLIVAN. Mr. Chairman, in view of the noncontroversial nature of this legislation, I do not feel it necessary for me to take the time of the House to urge its enactment. I know it will be passed, and that the membership is convinced of the value of the research now being done in this field of converting salt water for irrigation and other purposes.

However, because of the widespread interest in the subject matter of this legislation, I do think it would be worthwhile to have as part of the record of the debate here, an excellent statement on the program generally, presented last month to the Senate Committee on Interior and Insular Affairs, by Joseph Applebaum, vice president of the Oil, Chemical, and Atomic Workers International Union, CIO.

Mr. Applebaum, who has been a friend of mine for many years, has just recently moved from St. Louis to Denver, Colo., which is now his headquarters. In this matter, he testified in behalf of the National CIO, as well as his own union.

Mr. Applebaum endorsed wholeheartedly the objectives of the saline water program, and not only urged the extension of the program as provided for in H. R. 2126, but suggested that instead of an overall limit of \$6 million in preparations for this work, as provided for in H. R. 2126, that the ceiling be raised to \$25 million.

Because of the interest I know exists in this program, I include Mr. Applebaum's statement to the Senate committee, as follows:

STATEMENT OF JOSEPH APPLEBAUM, VICE PRESIDENT, OIL, CHEMICAL, AND ATOMIC WORKERS INTERNATIONAL UNION, CIO, TO THE SENATE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS, SALINE WATER PROGRAM EXTENSION, TUESDAY, APRIL 19, 1955, WASHINGTON, D. C.

Mr. Chairman and members of the committee, my name is Joseph Applebaum. I am vice president of the Oil, Chemical, and Atomic Workers International Union, CIO, with headquarters located in Denver, Colo. I am testifying here in behalf of the national CIO in support of the extension of the Government's saline water program.

Until recently, and prior to the merger of the Oil Workers International Union and the United Gas, Coke, Chemical Workers Union, I was western regional director of the United Gas, Coke, Chemical Workers Union. In that capacity I appeared before the House Committee on Agriculture in Whittier, Calif., on November 12, 1953, in support of the further extension of the Government's saline water program. At that time I said, "CIO * * * today is happy to pay tribute to the great foresight of those legislators of the West who

realize the great social and economic potential that lies in the sea at a time when no one else but a handful of scientists share their vision."

Since that time we in CIO have been impressed with the developments which have occurred in this field. We know that there has been proven a practicality to this program which now justifies the most optimistic hopes of our earlier testimony. We know that an application of vigor and intelligence can bring an early solution to many of our most pressing water-shortage problems.

Yet we stand here today in a period when the pressure of water shortage is an increasingly critical problem throughout the United States. In the past there have been occasions when it was safe to say that the water-shortage problem was primarily the problem of the West. With the passage of time, the growth of population, the increasing need for water in industry, agriculture, and for domestic use, it is now clear that water shortage is a national problem.

Therefore, gentlemen, it seems to me that the efforts of the past in solving this problem must be reexamined in the light of the new pressures, and steps must be taken to apply knowledge and technology which have been developed in this field in a more vigorous way looking toward the solution of this most pressing problem.

In the past week we have found general acceptance to a solution of one of the Nation's most pressing problems. The Salk vaccine may well end the fear of the dreaded disease polio. Given adequate funds and the application of trained technicians, we can solve some of our most serious problems. And no problem today is more serious than the growing shortage of water. Last week as I moved from St. Louis, my former home, to Denver, Colo., I experienced the effect of the snowstorm in eastern Colorado. This is one of the areas which has a critical water shortage. This storm, which delayed my trip, was greeted with jubilation in the eastern Colorado area. The more snow that fell the more water that would sink into the ground, the less the area would be affected by the scourge of the dust blow which is affecting this whole area. It is now taken for granted in the West that in the year 1955 this country will see the biggest dust storm in the creation of a new dust bowl with all its devastating effects covering 25 million acres.

Mr. Chairman, I propose that we immediately expand the Government's saline water program if for no other reason than to seek to end this menacing dust bowl condition, and that we provide the program with funds equal to \$1 an acre of the area affected, and that we call upon the scientists and the technicians and the irrigation experts to figure out ways and means of bringing an end to this condition brought about in such large part by the shortage of water.

Mr. Chairman, I said earlier we have been encouraged by the progress of this program. That is to say, we have been encouraged by the few experiments which prove that the program has developed a potential technology and an economic range of operation which can release the giant source of the ocean to meet the water needs of almost any area in the world.

The development of a power source known as the package reactor in the field of atomic energy means that we can now provide the technology of the saline water program to the most critical areas throughout the United States and the whole world, and use our developments in this field to meet the most pressing needs of the underdeveloped countries of the world in their economic developments.

Mr. Chairman, the CIO believes that this program should be given a priority equal to that of our most pressing military development programs so that we can show the

world that we are prepared to effectively aid them in raising their standard of living.

Recently the secretary of our National Committee on Resources Development drafted a memorandum on the Application of Atomic Power to the Demineralization of Sea Water for Irrigation or Domestic Use. Mr. Chairman, without reading this memorandum I would like permission to place it in the record at this point.

It shows, Mr. Chairman, that the direct power costs of the electro dialysis method of demineralization of brackish or sea water constitutes more than 50 percent of the total costs. But, it also shows the direct advantage which is gained from increasing the size of units involved. One million square feet of membrane area requires 1,600 kilowatt-hours per thousand gallons. Ten million square feet of membrane area reduces the power requirement to only 160 kilowatt-hours per thousand gallons. It is clear, therefore, that this program needs some immediate large-scale experimentation. It is likewise clear that we will never get the "bugs" out of the technology of this development until we try it in many places and on an increasingly larger and larger scale. Our technicians and the members of my own union have called our attention to the many places where this program can be immediately put to test. In some of the very areas affected by the dust bowl there are oil wells producing quantities of salt water which could be demineralized and used as potable water. The Department of the Interior's third annual report on saline water conversion says:

"The work accomplished so far indicates that attainment of the first goal of winning fresh water from sea water at a price which municipal users and some industries might pay, and the conversion of brackish water to irrigation uses, seems to be in sight although much work will be necessary before either can be brought to realization."

Mr. Chairman and members of the committee, while I endorse the intention of S. 516 I recommend on page 2, line 5, the phrase "\$6 million in all" be stricken and in place thereof the committee substitute the phrase "\$25 million a year"; and in line 17, page 2, the figure "\$500,000" be stricken and in place thereof "\$5 million."

Mr. Chairman, the memorandum to which Mr. Applebaum referred in his testimony, The Application of Atomic Power to the Demineralization of Sea Water for Irrigation or Domestic Use, is as follows:

MEMORANDUM

From: Leo Goodman, secretary, CIO national committee on atomic energy, power, and resources development.

Re the application of atomic power to the demineralization of sea water for irrigation or domestic use.

MARCH 15, 1955.

There has been since 1952 an appropriation of \$400,000 a year for the saline water conversion program by the Congress to the Department of the Interior. The goal set for this program has been the reduction of acre-foot of potable water at a cost of approximately \$125. This is based on a survey of the cost of water to 400 American cities.

For irrigation purposes the objective has been production in cost to \$40 per acre-foot.

Substantial success has been achieved through the use of an ion transfer membrane demineralizer. This has been tested for both brackish water and sea water. Brackish water in South Dakota has been demineralized at an estimated cost of \$4 per acre-foot predicated upon an estimated conversion plant installation cost of \$1,700,000, and salt content of 855 parts per million.

In Arizona, where the water contains 4,635 parts per million salt, the estimate is that

brackish water can be made potable with a \$10 million investment and a cost of \$20 per acre-foot.

In Texas estimates run to \$40 per acre-foot in a \$20 million plant based on salt content of 10,000 parts per million. This process uses the property of certain plastic membranes to pass only electrically positive particles (cations) and other membranes to pass only electrically negative particles (anions). When salts are dissolved in water they break up into equal quantities of cations and anions which move in opposite directions in an electrical field. The power requirements to reduce salinity to approximately 350 parts per million were experimentally determined. The energy demand per gallon treated in a given sized unit was shown to be inversely proportionate to the production rate; that is, the higher the production rate the lower the energy consumption per gallon. In producing a water product with 350 parts per million salt content to produce 10 acre-feet per hour, that is salt content of 350 parts per million from sea water which contains approximately 35,000 parts per million is shown in the following table:

Membrane area: ¹	Sea water ²
1-----	1,600
3.3-----	480
10-----	160

¹ In million square feet.

² Kilowatt-hours per thousand gallons.

For each of the types mentioned above of the total cost per acre-foot the power cost was:

Type:	Total cost	Direct power cost
South Dakota-----	\$4.08	\$2.56
Arizona-----	19.53	10.34
Texas-----	40.07	22.60

The above estimates are based on the assumption of 0.3 cent per kilowatt-hour.

Using the above estimates the Bureau of Reclamation has concluded that portions of the southern California and Texas coastal regions where water requirements exceed present local supplies, and those which can be developed, it is physically possible to meet all the future water requirements of those areas with converted sea water. (Saline water conversion program, Research and Development Rept. No. 3, entitled "Potential Use of Converted Sea Water for Irrigation in Parts of California and Texas," p. 2).

The fundamental problem, therefore, is the lack of power in areas which need this program the most. Southern California and Texas do not have available the large blocks of surplus power which would be needed to make such a program feasible at this time.

It is proposed, therefore, that the Atomic Energy Commission build some of its experimental atomic-power reactors in these areas of sufficient size to supply the power necessary for further development of the saline-water program.

(Mrs. SULLIVAN asked and was given permission to revise and extend her remarks.)

Mr. ENGLE. Mr. Chairman, I yield 3 minutes to the gentleman from California [Mr. HOLIFIELD].

Mr. HOLIFIELD. Mr. Chairman, I rise in support of this bill, and compliment the committee on bringing out this bill at this time. It deals with the question of research and development in the problem of desalting water, a problem which is an important one throughout all the arid areas of the world. In many places the great salt ocean borders upon the lands. If that water could be utilized, uncounted millions of acres could be brought into production. I think we should look at this thing realistically. I

realize that this is not an event that will occur overnight. It may take several years. However, certainly, in view of the progress that has been made in the research and development and in reducing the cost of desalting water, we should proceed with those very modest research and development projects which are now in existence, and in my opinion we should increase them.

Last week this body passed a \$31.4 billion defense bill, thirty-one thousand millions of dollars. We are coming forward here with a very modest request for a total authorization of around \$6 million to be spent over a period of time. It seems that when we are spending so many thousands of millions for arms because of the troubled conditions of the world, we are certainly justified in spending a few million in the field of development of cures for some of the reasons for tensions in the world.

Undoubtedly, throughout the world not only in our own country, but throughout the world, lack of food is one of the great tensions that produce disquiet and unrest and eventually prepares the seedbed for the seeds of communism. If we could produce food in abundance in those areas of the world which now cannot produce it because of lack of water, this would be one of the very valuable results of such a program as this. I think it is a modest program and it is something which, I think, the House will approve. I commend the committee and ask for full support by my colleagues of the House.

The CHAIRMAN. The time of the gentleman from California has expired.

[Mr. TEAGUE of California addressed the Committee. His remarks will appear hereafter in the Appendix.]

The CHAIRMAN. If there are no further requests for time, the Clerk will read.

The Clerk read as follows:

Be it enacted, etc., That the act of July 3, 1952 (66 Stat. 328; 42 U. S. C., secs. 1951 ff.), is hereby amended as follows:

(1) By modifying subsection (a) of section 2 of said act so as to read: "by means of research grants and contracts as set forth in subsection (d) of this section and by use of the facilities of existing Federal scientific laboratories within the monetary limits set forth in section 8 of this act, to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation."

(2) By modifying section 8 of said act so as to read: "There are authorized to be appropriated such sums, but not more than \$6 million in all, as may be required (a) to carry out the provisions of this act during the fiscal years 1953 to 1963, inclusive, (b) to finance for not more than 2 years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this act, and (c) during the same additional period plus 1 more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this act. Departmental expenses for direction of the program authorized by this act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed \$1,500,000, and not more than \$500,000 shall be expended

for research and development in Federal laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable."

The CHAIRMAN. Under the rule, the Committee rises.

Accordingly the Committee rose; and the Speaker having resumed the chair, Mr. KARSTEN, Chairman of the Committee of the Whole House on the State of the Union, reported that that Committee, having had under consideration the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, pursuant to House Resolution 231, he reported the bill back to the House.

The SPEAKER. Under the rule, the previous question is ordered.

The question is on the engrossment and third reading of the bill.

The bill was ordered to be engrossed and read a third time, and was read the third time.

The SPEAKER. The question is on the passage of the bill.

The bill was passed.

A motion to reconsider was laid on the table.

MUTUAL AID IN FIRE PROTECTION

Mr. FOUNTAIN. Mr. Speaker, I ask unanimous consent for the immediate consideration of the bill (S. 1006) to authorize the execution of agreements between agencies of the United States and other agencies and instrumentalities for mutual aid in fire protection, and for other purposes. I might say I have cleared this matter with the ranking minority member of the Committee on Government Operations and with the minority whip.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the request of the gentleman from North Carolina?

There was no objection.

The Clerk read the bill, as follows:

Be it enacted, etc., That as used in this act—

(a) The term "agency head" means the head of any executive department, military department, agency, or independent establishment in the executive branch of the Government;

(b) The term "fire protection" includes personal services and equipment required for fire prevention, the protection of life and property from fire, and fire fighting; and

(c) The term "fire organization" means any governmental entity or public or private corporation or association maintaining fire protection facilities within the United States, its Territories and possessions, and any governmental entity or public or private corporation or association which maintains fire protection facilities in any foreign country in the vicinity of any installation of the United States.

SEC. 2. (a) Each agency head charged with the duty of providing fire protection for any property of the United States is authorized to enter into a reciprocal agreement, with any fire organization maintaining fire protection facilities in the vicinity of such property, for mutual aid in furnishing fire protection for such property and for other property for which such organization normally provides fire protection. Each such agreement shall include a waiver by each party of all claims against every other party

May 16, 1955

ITEMS IN APPENDIX

16. SURPLUS COMMODITIES. Extension of remarks by Rep. Siler supporting his bill, H. R. 3706, to authorize CCC to process surplus grains for disposition to the needy (p. A3331).
17. FARM PROGRAM. Extension of remarks by Rep. Marshall inserting a Wallace's Farmer and Iowa Homestead article entitled, "How's Benson Doing?" criticizing Secretary Benson's farm program (pp. A3331-2).
Extension of remarks in the House by Rep. Sisk criticizing the Administration's farm program (pp. A3333-4).
18. PRICE SUPPORTS. Extension of remarks by Rep. Gathings inserting a letter from Lloyd Godley, Ark., favoring high price supports, particularly for the cotton farmer (pp. A3350-1).
19. WATER. Extension of remarks of Rep. Engle favoring H. R. 2126, which would continue the saline water conversion research program (pp. A3332-3).
20. DAIRY PRODUCTS. Extension of remarks by Rep. Johnson, Wis., supporting his bill H. R. 5342, which would use diverted acres for a conservation reserve instead of being used in milk production (p. A3333).
Extension of remarks by Rep. Johnson, Wis., inserting an editorial from the Wisconsin Agriculturist and Farmer favoring a production payment plan for milk. Rep. Johnson stated that his bill, H. R. 4360, would carry out this plan (p. A3335).
21. COUNTY AGENT. Rep. Smith, Wis., inserted an article by Mr. G. B. Gunlogson commending the county agricultural agents (pp. A3336-7).
22. PERSONNEL. Extension of remarks by Rep. Quigley criticizing the Administration's handling of the career service program and inserting an article by Joseph Young, "Political Favoritism Charged in Promotions" on this subject (p. A3341).
23. REGULATION. Rep. Budge inserted a resolution from the U. S. Plumbing and Pipe Fitting Association favoring the building of the Snake River dam by private industry (p. A3346).
Rep. O'Hara, Ill., inserted a letter from the president of the Metropolitan Chicago Council of the American Youth Hostels opposing the proposed Echo Park Dam (p. A3348).
24. FOOD SUPPLY. Extension of remarks by Rep. Dolliver commending Iowa's industrial growth and stating "Iowa produces 10 percent of the Nation's food supply" (p. A3349).
25. TRADE. Rep. O'Hara, Ill., inserted a letter from John W. Evers, president, Chicago Association of Commerce, supporting the proposed Organization for Trade Cooperation and explaining its functions (pp. A3354-5).
26. FARM PROGRAM; FOREIGN AID. Rep. Multer inserted a statement issued by 88 religious leaders favoring "expanded sharing of our material abundance" and "our technical skills" (pp. A3359-60).
27. STATEHOOD. Rep. Mack inserted an Ill. Federation of Business and Professional Women's Club resolution favoring statehood for Alaska and Hawaii (pp. A3351-2).

28. APPROPRIATIONS. Rep. O'Hara inserted a tabulated summary of the appropriations provided for in the Second Supplemental Appropriation Act for 1955 (pp. A3352-4).

COMMITTEE HEARING ANNOUNCEMENTS FOR MAY 17: Farm credit bill, H. Agri. (Tootell, FCA, to testify). Disposal of surplus commodities, S. Agri. (Waugh, State Dept., to testify).

MAY 19: Farm credit bill, S. Agri. (Tootell and Scott to testify). Loans to modernize central markets (H. Agri. (Scott and Lennartson to testify).

the Man, Abraham Lincoln, the Boy and the Man, the Life of Edward O. Moseley (1913), a Life of Gen. Charles H. Taylor (in 1923) following the publisher's death, Our Presidents, a highly popular series of biographical studies, and The Birth of the American People, a study of our Colonial and Revolutionary beginnings as a Nation, in 1930.

In 1926 Mr. Morgan was given the honorary degree of Master of Arts by Tufts College; and in 1938 Williams College awarded recognition to him for his work as a newspaperman, scholar, and historian by bestowing upon him the honorary degree of Doctor of Humane Letters.

Paralleling this continuous interest in matters literary was Mr. Morgan's unremitting production for the pages of the Sunday Globe, where his range of learning, lively style, and robust wisdom spotlighted week after week the events of the Nation and of the world. He continued to write these pages almost down to the week of his death, without the slightest faltering of his pen.

As his biographical studies and his histories suggest his main and abiding interest lay in political affairs. From the days of President Rutherford Hayes, he covered every national political conveyance held by both the Democrats and the Republicans down to 1949, hustling his dispatches off from the convention press box page by page as energetic at 75 as he had been in his thirties.

His skill at political reporting won for him the accolade from the late William Allen White, famous editor of the Emporia (Kans.) Gazette, as "the best reporter in the country." Mr. Morgan was then in his early eighties. When age prevented his personal attendance at the conventions, he secluded himself in a Boston hotel room and, with a special installation of radio and television, supplemented by long-distance telephone, did the job there.

Two Roosevelts, Theodore and Franklin D., were among the Presidents who called James Morgan to the White House. His advice was sought by Senators and Members of the House of Representatives in Washington from many States of the Union on matters of legislative policy and political strategy. Through his friendship with Senator Norris, of Nebraska, one of James Morgan's great campaigns to modernize the Federal Government achieved victory with the adoption of the "lame duck" amendment to the Constitution. This amendment put an end to the 18-month-long interlude between the election of new Members of Congress and their assumption of duties. He had urged this for a decade.

On the occasion of his 90th birthday, this native son of old Kentucky and rehabilitated New Englander received messages of congratulation from editors and statesmen, educators, and Supreme Court Justices, political leaders, and literary pundits all over America. They honored him not merely for his unusual achievement but equally for the graciousness, unfailing humor, and wide humanity of his character.

His personal reticence did not obscure a warm heart, a confident spirit, and a never-absent kindness of manner. His passing, alike to the members of the Globe family who were honored by his friendship and to the nearly 1,000 others who personally shared with them the richness of his personality and wisdom through intimate acquaintance, is less a signal for grief than a reason for thanksgiving that opportunity was given them to know and love one of such tempered wisdom and diverse qualities.

J. H. P.

JAMES MORGAN

It is difficult to appreciate so soon that James Morgan's help will no longer be available. It always has been at hand in the memory of the oldest Globe employee.

Wherever he was a phone call would bring a quick answer to the most difficult question, coupled with a careful, friendly explanation, offered with easy courtesy. Increasing age never reduced his alertness; rather it gave further depth to his understanding.

For what he said had authority. That stemmed not merely from a newspaper career of nearly 80 years, which he began as a telegrapher in the days when the effective use of the telegraph was comparatively new to journalism. Behind his experience there also lay his immense historical study, which helped him furnish the correct background for any picture that might emerge in the news.

He always searched out the fundamentals. It was characteristic of him that when he briefly investigated the subject of law he studied Blackstone's Commentaries. It was such searching self-education that developed Mr. Morgan, who had no formal education after the age of 9, into the elder statesman of American journalism and a successful author, to whom Williams College awarded a degree of doctor of humane letters.

His contribution to the Globe was immense, beyond possible assessment. This newspaper's policy of friendly, objective discussion, and avoidance of heat, is certainly in accord with his personality. With the late Gen. Charles H. Taylor, he founded the Uncle Dudley column 65 years ago.

That he will be missed goes without saying, but what he taught his colleagues over the years will long be remembered, for it forms a sure foundation. We prize a heritage, while we mourn a counselor and friend.

UNCLE DUDLEY.

Biscuits and Cornbread for Coal Miners and Other Americans

EXTENSION OF REMARKS

OF

HON. EUGENE SILER

OF KENTUCKY

IN THE HOUSE OF REPRESENTATIVES

Monday, May 16, 1955

Mr. SILER. Mr. Speaker, I have introduced a bill, H. R. 3706, similar to several others of equal intent and purpose, seeking to authorize Commodity Credit Corporation to process our surplus grains, now owned by the taxpayers but which are no more useful than a miser's coins under the floor board, in order that those grains may become flour and meal for our unemployed coal miners and for other Americans. Like the hoarding miser, we know the grain is ours somewhere in nice storage piles, but in our inner wisdom from the Lord, we also know that such stored grain will never be useful until placed in channels of human consumption at home or abroad. And I for one believe in being good to our own before we hunt for recipients for our goods in Turkey or Pakistan. I do hope many Members of this body will give much thoughtful consideration to the desirability for this type of legislation during these days of unemployment in our great coal industry. If we encourage Venezuela by permitting that country to ship unlimited quantities of residual oil into America to compete with our domestic coal industry, then we ought to encourage our

own unemployed coal miners by enacting legislation authorizing the processing of surplus grains into flour for biscuits and into meal for corn dodgers for the worthy families of some of the best Americans this side of Paradise, the mining people of southeastern Kentucky and of other sections of our coal-mining regions.

Mr. Speaker, I do not claim to be a poet. But once I was booked for a memorial address at a little mining community down in Whitley County, Ky., in honor of the departed coal miners all of us had known and loved as neighbors and friends before they were called to that mystic bourne from which no traveler has ever returned. So, I came up with a little poem honoring the miners we proposed to remember on that occasion. It follows below:

THE MINING MAN

(By EUGENE SILER, Williamsburg, Ky.)

(Read at homecoming of Bon Jellico miners on September 17, 1950)

Miner, miner shining bright
Down in caverns of the night.
How could wheels make their turn,
How could bright fires dance and burn
Without you, O mining man?

War or peace must have your coal,
A world is waiting for black gold.
So make a cut and shoot it down,
Load it up to go to town.
Blessing on you, mining man!

Toll and danger both you know,
Sometimes joy and sometimes woe.
But light of night comes by your hand
And with your help we run this land.
Hail to you, O mining man!

So now, Mr. Speaker, I trust this body at the proper time will not merely consider doing the Democratic thing or the Republican thing but rather the Christian thing toward the unemployed "mining man" and others in giving support to the legislation I have mentioned. I have decided that during my own congressional career, whether short or long, I do not intend to be pro-labor nor pro-capital nor pro-conservative nor pro-radical, but I do intend to be very pro-Christian and very pro-American. And I believe this legislation I have mentioned is both Christian and American in its basic character.

How's Benson Doing?

EXTENSION OF REMARKS

OF

HON. FRED MARSHALL

OF MINNESOTA

IN THE HOUSE OF REPRESENTATIVES

Monday, May 16, 1955

Mr. MARSHALL. Mr. Speaker, under leave to extend my remarks, I include an article from the May 7, 1955, issue of Wallace's Farmer and Iowa Homestead. Many of those who support the Eisenhower administration farm program of flexible price supports have asked us to wait and see how the program will work. They have indicated that a program of flexible price supports will reduce production and increase consumption with-

out lowering the income of farm families. The article I am including in my remarks shows that this is not the case. It follows:

How's BENSON DOING?

How is the Benson farm program working? His hope is that by lowering the price of farm products you can reduce production and increase consumption without too much injury to farm income.

Look first at the drop in support prices and intended acreage for 1955:

	Drop in price (cents per bushel)	Shift in acreage
Corn.....	4	No change.
Oats.....	14	Up 1 percent.
Barley.....	21	Up 9 percent.
Soybeans.....	21	Up 7 percent.
Sorghum.....	28	Do.

So far, the drop in support price has been accompanied by an increase instead of a decrease in intended acreage.

What about the dairy situation? The price has dropped but has production been cut?

In the marketing year ending March 31, 1955, milk production held about steady. Actually it rose a little, by half a billion pounds. In the first quarter of 1955, milk production was off 2 percent from the high first quarter of 1954.

But cow numbers are still high, and the April, May, and June production may equal last year's. If last year's drought is not repeated, milk production for all of 1955 may easily run ahead of 1954.

The cut in dairy product prices a year ago has made little difference in production and has helped to increase consumption slightly. To pay for these results, dairy farmers have taken a cut of 10 percent or more in net income.

Is the Benson plan working? Not with feed-grain crops certainly. And it shows only meager results in the dairy field at a high cost to dairy farmers.

in certain areas. The sources of water on which we normally rely are gradually being exhausted and, through use and reuse, the supplies derived from these sources are being contaminated. There is an urgent need then for finding additional fresh-water sources.

Last year thousands of cities and towns throughout the Nation were forced to adopt measures curtailing water use. The availability of water has become a major factor in the location of industry, as industrial water needs rapidly expand.

In the face of this alarming water situation, there is encouraging news for many of the areas most concerned over their dwindling water supplies. These are the areas that have an unlimited source of water but up to now this water has not been useable because of the salt content. There is enough fresh water in 1 cubic mile of ocean water to supply the entire Nation for 8 days. The problem then is to separate the pure water from the salt and this problem is well on the way to being solved.

On June 2, 1952, this body—House of Representatives—passed legislation establishing a research program with the objective of developing economically feasible processes for converting saline or salt water to fresh water. This legislation was enacted and became known as the Saline Water Act of 1952. I am happy to report that progress under this research program has been encouraging. No longer does any area have to face the possibility of running out of water as long as there are supplies of salt or saline water available. Economic demineralization of saline water is in sight.

By this program initiated by the Congress in 1952, the foundation is being laid for realistic development of practical conversion processes. At the beginning of the program the cost of converting sea water to fresh water by the best processes in use was estimated at about \$400 to \$500 an acre-foot. The initial cost goals for the program were set at \$125 per acre-foot for municipal water and \$40 per acre-foot for irrigation water on the basis that these amounts represented about the maximum that could be borne by these types of use. These goals are in sight and it is believed that they can be reached and lowered if the research is continued.

In accordance with the Saline Water Act of 1952, the research program is being accomplished under the direction of the Secretary of the Interior through, first, federally financed contracts for conducting scientific research with private scientists and engineers, educational institutions, scientific organizations, and engineering firms; second, encouraging development of saline water conversion processes by correlating and coordinating efforts in this field; and third, stimulating the interest of private and public organizations and individuals in the program. Some of the outstanding scientists in the country are working on the problem. In addition, there is a group of eminent leaders of educational, scientific, and industrial organizations serving as an advisory board to provide the Secretary with advice on broad policy matters relating to the program. The research

and development now in progress is being watched with much interest by those engaged in similar projects in a number of foreign countries and there is cooperation between this Government and those abroad having mutual interest in this problem.

Many ideas and processes have been studied. Some have shown promise and some have been discarded. The processes under study include: First, electric membrane processes; second, vapor compression distillation; third, solar distillation; fourth, critical pressure devices; fifth, osmotic processes; sixth, solvent extraction; and seventh, separation by freezing. The technical details of these processes for those who are interested may be obtained from the printed hearings before the Interior Committee or may be obtained from the Department of the Interior.

The program embodied in the 1952 act was for 5 years and called for the expenditure of \$2 million over the 5-year period. H. R. 2126 would amend the Saline Water Act of 1952 to provide for uninterrupted continuation of the saline water conversion research program. This legislation would modify the basic act by extending the period of the research program by 5 years, by increasing the amount authorized to be appropriated from \$2 million to \$6 million, and by permitting research to be carried on to a limited extent in existing Government laboratories.

Under the provisions of the 1952 act, all research activities and field tests, including reports thereon and the correlation and coordination of all data, must be completed prior to July 15, 1957. It is necessary that extension of the program be authorized at this time if it is to continue without interruption. Under the existing law, most active research contracting would have to be terminated by about December of this year to permit completion of the work under the contract and final reporting of the results and conclusions by the deadline of July 1957.

Unless the program is extended, it would be terminated just at a time when the need for advance research and development of the most promising processes is expected to be paramount. Up until now, most of the research and development on processes has been on a relatively small-scale laboratory basis. Much of this exploratory research needs to be continued; however, in addition a few processes have shown sufficient promise to warrant the installation of pilot plants or the undertaking of field tests. Such plants and tests are essential in order to obtain reliable cost estimates and information on the durability of the unit, production capacity, power requirements and other data necessary to demonstrate the feasibility of large-scale conversion.

The need for authority to use Government laboratories to a limited extent is primarily for the purpose of making unbiased comparisons of processes in confirmation of research results.

With the encouraging results from recent advancements, primarily as a result of the legislation passed in 1952, I do

Progress Report on Desalting Sea Water

EXTENSION OF REMARKS OF

HON. CLAIR ENGLE

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

Monday, May 16, 1955

Mr. ENGLE. Mr. Speaker, in the last decade the diminishing water supply in this country has become a matter of great concern. To realize there is good cause for this concern one only needs to examine past history where whole civilizations have vanished from certain areas of the earth because their water supplies were exhausted.

As the water needs of our country grow, as agriculture and industry require more and more water and our available supplies dwindle, the importance of water to our well-being and to our overall national economy is impressed upon us more and more. Expansion of our industries, our growing populations, and expanding agricultural production have increased tremendously the demand for large quantities of fresh water. This continued growth and expansion has placed a severe drain on water resources

not hesitate to predict that this research program, if it is continued, will result in development of processes which will, within the extension requested by this legislation, produce fresh water for municipal use in certain areas at a cost that is competitive with other sources and will produce fresh water for agricultural purposes in certain areas from brackish water at a cost which will be feasible.

Don't Turn Diverted Acres Into Milk

EXTENSION OF REMARKS

OF

HON. LESTER R. JOHNSON

OF WISCONSIN

IN THE HOUSE OF REPRESENTATIVES

Monday, May 16, 1955

Mr. JOHNSON of Wisconsin. Mr. Speaker, our present Federal farm programs have not solved the many problems facing the dairy farmers of the Nation. In fact, some elements of the general farm program not related to dairy farming actually impose new problems for dairy farmers and the dairy industry. I refer specifically to the problem of diverted acres from other types of farming. It appears that in the past the diverted acres have been temporarily turned into use for dairying. This, of course, intensifies the problems of farmers normally and regularly engaged in dairy farming.

Under leave to revise and extend my remarks, I wish to insert in the RECORD an editorial from the May 7, 1955, issue of the Wisconsin Agriculturist and Farmer which discusses this problem. Here is the full text of the editorial:

It is true that the milk surplus picture looks a bit brighter than in 1954. However, there is still a big black cloud hanging over the dairy future.

The thought of 30 million diverted acres is a continuing worry to dairymen. These are the acres taken out of corn, wheat, and cotton production by farmers who comply with Federal crop controls.

Government policy is to get these extra acres into hay and pasture crops. This is good for the land but it is sure to mean extra competition and more milk surpluses.

More acres of hay and pasture are sure to mean more meat and milk. The only thing to do with forage is to feed it to cattle and sheep. Some of those added cattle will be dairy cows.

We hate to see these diverted acres shifted from corn, cotton, and wheat and put into milk production. Competition is tough enough as it is.

Acreage taken out of those crops should be taken completely out of circulation. Otherwise they solve one problem only to create another.

I wish to point out to my colleagues that I have introduced a bill, H. R. 5942, which I believe solves the problem of diverted acres. Briefly, my bill calls for the Secretary of Agriculture to annually determine and proclaim prior to November 15 of each year a national conservation acreage reserve for the succeeding year. The Secretary of Agriculture, after surveys, will determine how many acres of land are needed for current production needs and how many

acres of land are to be diverted into the conservation reserve.

The national conservation reserve will then be broken down into State allocations. The States in turn will allocate the reserve acreage to counties in the same ratio as the previous year's acreage in national production totals. County farmer committees will then allocate the county's conservation reserve to individual farmers on a similar basis.

The Secretary of Agriculture is authorized to enter into annual agreements with individual farmers for the making of incentive payments to farmers who agree to put the specified number of acres into a conservation reserve on their farms. Such incentive payments will be based on the value of the customary landlord's share, in the area where the farm is located, of commodities which the Secretary determines would be produced on the reserve acres if they were used for commercial production for the crop year on which the contract is made. The bill limits incentive payments to \$2,000 for any farm operator's unit.

I believe if my bill is adopted it will solve the problem of diverted acres—diverted acres that in the past have sometimes been turned into dairying or other types of farming. Under my bill diverted acres will be used for a conservation reserve. It is a reserve plan that will protect our top soil when we need it for an emergency or in the not too distant future to meet increased population of the Nation.

Developing a Sound Farm Program

EXTENSION OF REMARKS

OF

HON. B. F. SISK

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

Monday, May 16, 1955

Mr. SISK. Mr. Speaker, I have just had the pleasure of having as my guest on a radio program for the people of my district, our distinguished colleague, the Honorable HAROLD D. COOLEY, chairman of the Committee on Agriculture of this House. I was so struck by his informative discussion of our farm problems that I would like to repeat here some of the ground we covered and plead for quick and vigorous action by this Congress toward developing a sound farm program.

In casting my vote for H. R. 12, which would restore 90-percent parity price supports for basic agricultural commodities and put a floor of 80 percent under dairy supports, I am not under any illusion that this measure is any more than a step in the direction of adequate farm income security. I would like to make it clear that I do not consider price supports, whether fixed at 90 percent or flexible, as anything more than a temporary prop to try to keep a large number of our farmers from going bankrupt and losing their farms during the period before we can work out a sound, permanent, and effective program.

In the first place, I am unhappy because H. R. 12 makes no provision to help agricultural industries outside the so-called basic crops and dairying. I believe that other farmers, raising other crops, are as much entitled to help as are the producers of the basic crops. In my own district we have large production of grapes, raisins, fruits and vegetable crops and the farmers who are supplying these essentials to the Nation have problems equally difficult with those of the producers of cotton, wheat, corn, rice, and peanuts, and I believe their economic welfare is as important to the Nation as is the survival of farmers producing basic commodities.

I think it must be apparent that if price supports are to serve any effective purpose in saving our farm families from going under, they must be at 90 percent of parity. Actually, the difference between the 90 percent and the 75 percent or 80 percent they would receive under the flexible support program is the amount keeping them alive and eating and able to operate their farms. For a large percentage of our farms, it is the slim margin of survival. The Secretary of Agriculture has publicly stated that the policy of the administration is to eliminate 10 percent of farm families. That means about 500,000 families, about 2 million men, women, and children of America who have chosen farming as a way of life. The Secretary of Agriculture also advocates the flexible price support program and it is apparent he and the administration propose to use this device as a means of accomplishing his purpose to drive farmers away from their farms.

Recently President Eisenhower delivered a message to the Congress endorsing a program of farm help put together by Secretary of Agriculture Benson. After wrestling with the problem of what to do with our farmers who are on the verge of going under, what do they come up with? A proposal that the Federal Government assist them by educating them not to be farmers. They propose we solve our farm problem by educating farmers to be laborers or mechanics—not by helping them to be better farmers, or trying to solve their price or distribution problems. This would sound ridiculous if it were not tragic confirmation of the existence of an administration program to liquidate farm families. Actually, it fits into a program which also is designed to pinch off and abandon reclamation, which would put water on millions of acres and in many instances convert them from marginal to fine, producing acres, helping to solve the world's food shortage.

May I recall to you the prediction of former President Truman when he dedicated an important reclamation dam in 1952 and told his listeners to mark it well, for if the Republican Party gained power, they would not see another dam like it? How well he knew the plans of the present administration is shown by the fact that there has not been a single new reclamation start since January 1953.

All this fumbling with our farms adds up to an administration philosophy I think is unknown to many of our farm-

ers. It amounts to a plan to drive farmers out of business and herd them into industrial pursuits. As tools to accomplish this purpose we have flexible, bankruptcy price supports, stopping reclamation programs which would create new irrigated farms, and proposals to recruit farmers into industrial plants. Instead of a program to keep farmers in business producing food and fiber, we are asked to go along with a program to drive them off the farms. This is the opposite of a farm program as I see it.

Since I have been in Washington I have been astonished and aghast at the hopeless, helpless attitude of the Department of Agriculture. I wish our farmers generally could see the callous and cold reaction of the leaders in that Department to the human problems they should be trying to solve. Believe me, when I take up with officials of the Department of Agriculture the acute and immediate problems of a major segment of agriculture, the turkey industry, and am informed the Department proposes to do nothing to cooperate with the industry, I cannot accept their plan to shake out less efficient producers—to solve the problems by permitting chaos in the industry this fall, with inevitable bankruptcy for thousands.

The fact of the matter is that a continued program of price supports is necessary at this time primarily because the administration has completely failed to develop a farm program. It appears we cannot expect such a program from the hopeless, helpless group now charged with this responsibility. As I see it, development of a long-range farm program is up to us and we cannot expect cooperation from the administration. When such a program is developed, we no longer will be concerned with either flexible or rigid price supports on their present basis, and I, for one, will be happy to see the end of this artificial emergency aid.

How shall we go about working out a farm program? Certainly, we have a valid objective, and that must be to provide a farm economy in which every hard-working farmer will know that by proper, efficient farm management, he can recover his costs of production and receive a profit sufficient to raise and educate his children under a standard of living we want in an American home.

Because we have proof with which we cannot argue that the world as a whole has a serious food shortage, we must grant that our local situation, with what appears to be surpluses, can be smoothed out by proper distribution.

Reciprocal trade provides the basic tool for foreign agricultural distribution, and it is too bad the Department of Agriculture continues to drag its feet in developing world markets for our surplus farm production.

We need also to encourage marketing agreements, cooperative marketing associations, advertising and distribution programs to knock off the peak of surplus production and fill in the valleys of underproduction.

We must curb food profiteering and speculation abuses and cut the costs of distribution, so that consumers can get food and clothing at fair prices while

farmers receive a fair return. I am most happy to learn from Congressman COOLEY that the Agriculture Committee of this House is embarking on a program to study consumer and farm prices, and I have every hope that legislation to deal with this problem will result.

We need more advance planning of projects to convert marginal land into good farms, through increased soil conservation and a renewed program for reclamation, and we must overcome and throw aside the reluctance of the present administration to go ahead with these vital projects.

In the face of a hopeless, helpless administration, the need of action by this Congress is urgent, lest delays wreck our farm economy and change our most basic strength into an agricultural shambles.

Formosa

EXTENSION OF REMARKS

OF

HON. WAYNE N. ASPINALL

OF COLORADO

IN THE HOUSE OF REPRESENTATIVES

Monday, May 16, 1955

Mr. ASPINALL. Mr. Speaker, under leave to extend my remarks, I would like to insert a very excellent article written by the Honorable Stanley K. Hornbeck entitled "Formosa" and which was published in the spring issue of World Affairs magazine.

Mr. Hornbeck has had a distinguished career in the Foreign Service of our country. He served as the Chief of the Far Eastern Division in the Department of State, as a Special Assistant to the Secretary of State, as a member of the American delegation to the Dumbarton Oaks Conference in 1944, and as United States Ambassador to the Netherlands from 1944 to 1947.

I recommend Mr. Hornbeck's article to all who are concerned and interested in the present situation in the Far East:

FORMOSA

(By Stanley K. Hornbeck)

Nature placed it in the geographic orbit of the Asiatic mainland. Human adventuring, pioneering, and settling brought it long ago into the ethnic orbit of China. Portuguese mariners gave it the name by which we know it: Formosa. To the Chinese and the Japanese it was and is Taiwan. Spaniards, Netherlands, Englishmen, Japanese, Americans, and Chinese have given it a place in history. A war and a treaty drew it 60 years ago into the political orbit of Japan. Another war evoked from the major powers on what became the winning side a declaration of purpose that it be restored to the Republic of China, brought about relinquishment by Japan of any and all claim to it, rendered it de facto a province of China, and left in suspense the question of its status de lege.

Karl Marx, Lenin, the Communist conspiracy and the evolution of the Communist empire have made of it and its environs a focal point in the current phase of the age-old struggle between, on the one hand, men and ideas contending for human freedom and, on the other hand, men and ideas committed to procedures and practices of enslavement.

The 8 million Chinese now on Formosa—

many of whose leaders are American educated—live, toil, think, fear, and hope within the orbit of the free world. To most of them that island is homeland; to some 2 million newcomers a land of asylum. It and they, together with the nearby Pescadores and a few small islands along the China coast, have become a symbol, a rallying point, and a test case for the cause of freedom in relation to the largest and oldest of Asian nations, China.

The "problem" of "Formosa" is now a subject of concern throughout the world. Are Formosa and the other islands now held by the Nationals, are they, all or some, are they and the people on them to remain "free" and within the free-world orbit; or are they to be dragged—by force—into the orbit of the Communist world? Implicit in and inseparable from that "problem," there are for the free nations the enduring problems of freedom, peace, security, and justice; and for the rulers of the Communist world the problem of consolidating, maintaining, and expanding their enslaving empire.

Among the issues in the conflict of proposals and policies relating to or bearing upon the future of Formosa are those of freedom or enslavement for the 8 million Chinese on that and the smaller islands; of perpetuation or destruction of hope for freedom for 500 million Chinese on the mainland; of encouragement or discouragement for peoples free or hoping to be free elsewhere in Asia; of more or less for men and nations everywhere; of increasing or decreasing the safeguards of world peace. All of these issues are, of course, of concern to the Government and people of the United States.

The foreign policy of the United States is rooted in Christian concepts of personal, national, and international morality. The people of the United States believe in freedom, peace, security, and justice, not alone for themselves and their country but for human beings and national groupings everywhere. They perceive that in the world as it is today all Communist regimes are dedicated to the destruction of freedom and are a menace, globally, to peace, security, and justice in any setting or context.

The Government of the United States has decided that it is essential to the security of the United States and desirable in the interest of peace that conquest of Formosa by Communist armed forces not be permitted. This Government has now concluded (in February 1955) with the National Government on Formosa a treaty committing the United States and the Republic of China reciprocally and in common to principles and purposes of mutual defense. The Congress has already indicated, by passage of a joint resolution and by the Senate's ratification of the treaty, that it concurs in the estimate and it approves the action of the Executive in the taking of this step.

The objective of the United States in this and in other contexts is, as President Eisenhower has declared, "honestly and hopefully to prevent war." The people and the Government of the United States want peace; our allies want peace; most of the members of the United Nations want peace; all civilized and right-minded folk want peace. But peace can be had only at a price; either contend for and defend freedom or tolerate and accept enslavement.

Should there come an effort by Communist China to take Formosa by armed assault the United States thus plans to make common cause with the Nationalist China in armed resistance to that attack. Should that be war or lead to war, the United States will not have gone to war to defend Formosa; we will have been forced by the Communist world to fight in self defense—to fight in defense of our right, a part of the right of all mankind, to freedom, peace, security, and justice.

15. BUDGET; SURPLUS PROPERTY; TRAVEL. The Government Operations Committee reported without amendment S. 1805, to amend the Legislative Reorganization Act of 1946 to create a Joint Committee on the Budget (S. Rept. 352); with amendments H. R. 3322, to amend the Federal Property and Administrative Services Act of 1949, so as to improve the administration of the program for the utilization of surplus property for educational and public health purposes (S. Rept. 351); and with amendment S. 1795, to amend the Travel Expense Act of 1949, to provide an increased maximum per diem allowance for subsistence and travel expenses (S. Rept. 353) (p. 5421).
16. EXPENDITURES; APPROPRIATIONS. Sen. Byrd inserted a statement of the Joint Committee on Reduction of Nonessential Federal Expenditures relating to unexpended balances of Federal appropriations as of Dec. 31, 1954 (p. 5437).
17. PRICE SUPPORTS. Sen. Langer inserted his letter to Sens. Ellender and Johnson requesting that an opportunity be given to vote on H. R. 12, the 90 percent price support bill, before the adjournment of Congress (p. 5441).
18. EDUCATION. Sen. Carlson urged increased funds for the international education exchange program (p. 5440).
19. REORGANIZATION. Sen. Neuberger criticized certain recommendations of the Hoover Commission and inserted a New York Times article discussing the latest recommendations of the Commission (pp. 5443-4).
20. ROADS. Sen. Byrd inserted various newspaper articles discussing the President's proposed highway plan (pp. 5474-9).
21. ~~BOUNDARY FENCE; FORESTS; ACCESS ROADS; RECLAMATION; WATER RESEARCH. The Interior and Insular Affairs Committee ordered reported without amendment S. 76, to authorize a Mexican boundary fence; S. 55, authorizing payment for interest in lands within the Coconino and Sitgreaves National Forests, Ariz.; S. 1464, to acquire certain rights-of-way and timber access roads. The Committee ordered reported with amendment S. 180, to authorize the Washita River Basin project, Okla.; H. R. 103, to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies; and S. 516, extension of the saline water program (p. D425).~~
22. RECESSED until Thurs., May 19 (p. 5487). Legislative program as announced by Majority Leader Johnson: Thurs., bills to amend REA loan formula and to provide surplus property for educational and health purposes; and Fri., road bill (pp. 5458-9).

ITEMS IN APPENDIX

23. PERSONNEL. Extension of remarks of Rep. Van Zandt in support of H. R. 5927 providing for a ready reserve and transfer from ready reserve to standby reserve of essential civilian government employees (pp. A3361-63).
24. RURAL ELECTRIFICATION. Rep. Karsten inserted an editorial from the St. Louis Post-Dispatch criticizing the inoperation of contract between the Southwestern Power Administration and five Missouri coops (p. A3368).
25. WATER. Extension of remarks of Rep. Phillips in support of H. R. 2126 to extend research in conversion of saline water to fresh water (p. A3370).
Extension of remarks of Rep. Teague, Calif., in support of H. R. 2126, to extend research in the conversion of saline water to fresh water (pp. A3386-7).

26. FOREIGN AID. Rep. Smith, Wis., inserted an editorial from the Janesville, Wis., Gazette expressing concern over the cost of further technical aid to southeast Asia (p. A3370).
27. FOOD SUPPLY. Extension of remarks of Rep. Griffiths on Michigan Week and noting that Michigan has an important agriculture industry (p. A3376).
28. TRADE. Rep. Gross, Iowa, inserted an article by Ed Wimmer of the National Federation of Independent Business, Inc. appearing in the Cincinnati Enquirer in opposition to lower tariffs. It notes Secretary Benson's remarks on disposal of farm surpluses (p. A3377).
Rep. Ostertag inserted an article from the Rochester Democrat and Chronicle based on findings by the League of Women Voters of Monroe County, N. Y., expressing sentiment favorable to the reciprocal trade bill (p. A3378).
29. RECLAMATION. Rep. Rhodes inserted an editorial from the Phoenix Gazette criticizing Leslie A. Miller of the Hoover Commission for unfavorable comments in a Reader's Digest article on reclamation and water supply in Central Arizona and the Upper Colorado River Basin (p. A3381).
30. PRICE SUPPORTS. Rep. Hope included an editorial from the Falls City, Nebr., Journal in support of high rigid farm supports (p. A3381).
Sen. Goldwater inserted an article from Business Week commenting favorably on the Administration's farm program of flexible supports and more efficient farms (pp. A3393-4).
Sen. Thye inserted an editorial from the St. Paul Pioneer Press denouncing the use of the flexible-rigid price support controversy as a political football (p. A3394).
Sen. Thye inserted a telegram from M. W. Thatcher of the Farmers Union Grain Terminal Association in favor of 90% of parity price supports (pp. A3397-8).
31. EXTENSION WORK. Extension of remarks of Rep. Hoeven on the value and importance of agricultural research, the county agent, farm institutes, and the role of the state and federal agricultural services (pp. A3382-5).
32. POULTRY. Sen. Thye inserted an article from the Minneapolis Morning Tribune commenting on the difference between prices received by the farmer and consumer cost for poultry products (p. A3393).
33. FOOD SURPLUSES. Sen. Langer inserted a letter from M. F. Peterson, superintendent of the N. Dak. Department of Public Instruction, in favor of the school lunch program as a means of disposing of food surpluses (p. A3397).
34. DAIRY INDUSTRY. Sen. Thye inserted an article from the Minneapolis Morning Tribune suggesting the opening of eastern markets to midwestern milk (p. A3402).
35. PUBLIC POWER AND RECLAMATION. Rep. Dawson inserted an editorial from the Charleston, W. Va., Gazette supporting the Colorado River Storage project (p. A3409).
Rep. Metcalf inserted an article which appeared in the St. Louis Post-Dispatch critical of the Administration's public power policies (p. A3409).
36. SUGAR QUOTAS. Rep. Morano inserted a letter from H. T. Jensen of the Federal Paper Board Company lowering Cuban sugar quotas (p. A3411).

marked by Americans of Norwegian descent at rallies in Brooklyn, Chicago, Minneapolis, and other United States cities as it is elsewhere in the world.

On this morning, every schoolboy and girl in Norway hops out of bed at the crack of dawn to look at the sky, hoping for a sunny day. But even if the winds are chill and the rain falls, they will march all morning in the school parade, to tunes played by the boys' brass bands, to celebrate Norway's greatest national holiday—the day in 1814 on which its Constitution was signed.

The largest school parade is in Oslo, the capital city of Norway. Every year, at the end of their long 3-hour march, Oslo schoolboys and girls, pass under the balcony of the Royal Palace. Among the paraders are also students about to graduate from the secondary gymnasium school to enter the university. As the students march by, they cheer and spin their red and blue tasseled caps up in the air on the traditional bamboo canes.

Every May 17 from early morning on, the Palace grounds and the parade streets are packed with people. By 7 a. m. the churches open and crowds gather to listen to the choirs. Children from hospitals sit in special places in front of the Palace. Everyone brings a package lunch, and grownups and children alike are excited and happy. Freedom and independence, celebrated this day, mean as much to Norwegians as they do to Americans.

In the afternoon, each neighborhood has a celebration of its own so that the children who are too little to join in the school parades may march near their homes. Everyone joins in the fun—waving the red, white, and blue Norwegian flag, leading dogs, pushing baby carriages—all heading for the place where they will listen to patriotic speeches and play games.

The Eidsvol mansion near Oslo, where the Constitution was signed, is now a national shrine. This neat, gray house with its rust-colored trim still stands as it was on that memorable day in 1814. Even the furniture is the same.

Freedom, independence, and self-government have long traditions in Norway. An ancient Norse statute proclaims:

No one shall lay hands on another in his home, neither the King nor anyone else. If, nevertheless, the King does so, the summons shall pass through all the land and men shall advance against him and strike him. If he eludes them, he shall never be allowed to return to the land.

This and many other ancient rights were reaffirmed at Eidsvoll. Four hundred years under foreign kings has not quenched the love of freedom. It was expressed in the nationwide call for a return to the law and to self-government.

The constitution of 1814 is one of the few charters of freedom of that era still remaining in force. Twenty years after its enactment, at a time when the tide of reaction was sweeping away all liberal constitutions on the European continent, a contemporary British writer and politician explained its lasting success in these words:

All the essential parts of liberty were already in the country. The property was in the hands of the whole people. The ancient laws and institutions affecting property were in full operation, and they were conceived and administered in the very spirit of liberty. There was nothing in the condition of the people, the state of property, the civil or religious establishments which did not fit in with a free constitution. The new constitution was but a superstructure of a building of which the foundations had been laid and the lower walls constructed, 8 centuries before, by the ancestors of the present generation.

The Norwegian Constitution of 1814 provides for clearly separated legislative, executive, and judicial branches of government. Inspired by the ideals of the American War of Independence and the French Revolution, the Norwegian constitution lays down the following important rules: First, no person can be imprisoned without trial; second, freedom of speech, publication and assembly must be protected; and third, no law may be given retroactive effect. Norway is a free, independent, indivisible, and inalienable kingdom. Its form of government is a limited and hereditary monarchy.

Research in the Development and Utilization of Saline Waters

SPEECH

OF

HON. JOHN PHILLIPS

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

Monday, May 16, 1955

The House in Committee of the Whole House on the State of the Union had under consideration the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters.

Mr. PHILLIPS. Mr. Chairman, if I were to choose the two problems in the United States, of greatest importance to the people, in which the Government could interest itself I think they would be water and the conservation of land; that is, the conservation of water, the development of new sources of water, the use of water to its fullest capacity, just as we have now before us the problem of the conservation of land which has been washing away. In that way there is a certain similarity between the subjects, because we are wasting these two essential, and perhaps greatest assets that any nation could have.

As the chairman, the gentleman from California [Mr. ENGLE], said, I have been interested in this, and the RECORD will show I was one of the first to put in a bill to try to do something about it. I am still interested, and I know this bill will pass because of its importance.

I think the RECORD should show that it is a broad subject, that it is not entirely a question of taking sea water out of the ocean and getting the salt out of that, and then either putting it upon land or using it domestically. There is the question of the transportation of wa-

ter. Some islands have been compelled to use sea water, in dual lines, so they may conserve the fresh water and use the salt water for fire protection. The amount of fresh water that we put into the great cities of this country daily in the sewage disposal plants is unbelievable.

All of this is involved in the question of the use of sea water which has been rendered either pure or practically free from salt. It is only a beginning. I look for great advances, under the terms of this bill.

I am very much in favor of the bill. I know it will pass.

Foreign Aid—Where Does the Little Man Come Out on This?

EXTENSION OF REMARKS

OF

HON. LAWRENCE H. SMITH

OF WISCONSIN

IN THE HOUSE OF REPRESENTATIVES

Tuesday, May 17, 1955

Mr. SMITH of Wisconsin. Mr. Speaker, under leave to extend my remarks, I am inserting a timely editorial that appeared in the Janesville (Wis.) Gazette on May 7. This editorial points out that if the men in Washington decide to spend a billion dollars more for foreign aid or other purposes that it will all come out of Mr. Taxpayer's pay check and it will be just that much less for him to take home and spend on himself. The editorial follows:

WHERE DOES THE LITTLE MAN COME OUT ON THIS?

The man who works 40 hours a week at a good job and earns \$100 a week actually sees only a fraction of that amount written on his paycheck. The balance is taken out before he even sees the check, for "security" of one kind or another—insurance, social security, contributions, withholding taxes, etc. The amount he does not see depends upon the number of his dependents.

If the men in Washington decide to spend a billion dollars more for foreign aid or financial banks or rivers and harbors or big dams or superhighways or higher salaries all around, Mr. Taxpayer's paycheck will be just another fraction less. His "take home pay" is what we are talking about. The additional Government spending comes directly out of his pocket.

That is why this newspaper is apprehensive about the President's proposal for spending three to four billions on southeast Asia, where we already have sunk billions with no return. It is another rathole. Spending billions for direct aid is no answer. It is only a sop. The only help so far that means something is a type of point 4 plan, giving those countries our know-how.

The International Bank has served a highly useful purpose and President Eisenhower's suggested participation in a new international finance corporation to increase flow of private investment funds from this country to others may be sound. It requires a minimum of commitments with a maximum of good in return.

Mr. Taxpayer faces higher Rock County taxes, perhaps higher Janesville city taxes, much higher State taxes, higher gasoline taxes, and the certainty of continuing high

it—I shall highly prize the honor . . . conferred on me.”

Dr. D. Elton Trueblood, chief of religious policy of the United States Information Agency, giving the main address at the dinner, said: “Do not believe President Eisenhower is a mere attendee. He is a devout attendee. But he also knows something about the relationship between our religion and our total life.”

RELIGIOUS REVIVAL

There is concrete evidence of a religious revival in the United States. Dr. Trueblood said. Religious books are selling at an all-time high, and gatherings of church laymen are so great that the biggest problem is taking care of the crowds.

The doctrine of separation of church and state is not a belief in separation of religion and state, Dr. Trueblood stated. “We will not permit any one denomination to monopolize the religious life of the people or give one church a favorite position. But we are not a secular people . . . we open Congress in prayer. We have religious counselors in the Armed Forces.”

Dr. Trueblood then gave his “own best thinking on the direction in which we are going.”

He said the world is seeing the emergence of something like a new movement—call it a “society of penetrators,” embracing clergy and laity of all denominations, and both men and women—“a task force penetrating the paganism of our world, each one where he is.”

DEVOUT MEN EVERYWHERE

This society includes men and women in Government, business, and colleges—all those “convinced that our religious faith is that without which this world cannot stand, something without which our civil liberties are not possible and cannot be maintained,” he said, adding:

“In this order, you find devout men teaching physics, devout men teaching chemistry, and devout men teaching English.

“I am grateful for the great crowds, but I put my hope in the hard core which can change the world.”

Senator LYNDON B. JOHNSON, Democrat, of Texas, majority leader of the Senate, speaking at a pilgrimage session in the old Supreme Court chamber of the Capitol, said: “We must as a Nation make the decisions which will determine the future of all mankind. Those decisions will be right only if we place our trust in immortal wisdom.”

PRAYER ROOM HELPFUL

Representative BROOKS HAYS, Democrat, of Arkansas, responsible in large part for the establishment of the Prayer Room in the Capitol, said about 75 Members of Congress used it the first week it was open, and as many as 13 in a single day since then.

Under the burden of leadership and legislative duties, harassed Congressmen welcome a place to retreat and pray, he said. The room “is primarily to meet this human need of men and women like yourselves, who feel the need . . . for strength that comes from outside themselves.”

At an afternoon service in front of the Lincoln Memorial, Secretary of Agriculture Ezra Taft Benson gave a prayer for the Nation.

Representative FRANCES P. BOLTON, Republican, of Ohio, received the churchwoman of the year award for her service as a spiritual interpreter in Congress, in international affairs, in nursing and public health matters, and in advancement of educational institutions and values.

The pilgrimage named the Reverend Ralph W. Sockman, minister of Christ Church, New York City, the clergy-churchman of the year.

The Question of Security

EXTENSION OF REMARKS

OF

HON. ALBERT H. BOSCH

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

Tuesday, May 17, 1955

Mr. BOSCH. Mr. Speaker, there is much talk about the security of the United States, the methods used by investigating committees and agencies, and the practice of using informants. Can anyone tell me of a suitable substitute for informants? It is my belief that they cannot.

I have read with interest the column of George E. Sokolsky which appeared in the May 16, 1955, edition of the New York Journal-American.

Under leave to extend my remarks, I include Mr. Sokolsky's column and commend it to my colleagues:

THESE DAYS

(By George E. Sokolsky)

THE QUESTION OF SECURITY

In time of war, security becomes a routine matter; spies, saboteurs, and traitors are dealt with summarily if known and caught. In time of peace, definitions become blurred. It is not so easy to prove that a tourist or a merchant is a spy; sabotage is generally not practised; and it is extremely difficult to prove treason. A difference of opinion is not treason; membership in the Communist Party or support of its cause is not treason per se.

Usually, when a war is ended, these problems fade from the view of our people and even our officials charged with such matters turn to other work. The Communists and the pro-Rusians have, however, presented altogether another problem, one to which we are not accustomed and which is, on the whole, distasteful to most Americans.

Inquire into subversion

Two agencies of government exist which are charged by law to inquire into this subject constantly. One, of course, is the FBI which supplies the Department of Justice and other Government departments with unevaluated data gathered by its agents. The other investigator into this subject is the Congress through its various committees. In addition, in recent years, the various departments of Government charged with the employment of men and women in Government are required by law to investigate their character and their relations to subversive movements.

How far all these investigations are to go and what methods are to be used has been a bone of contention for several years. The main differences of opinion can be stated in these terms:

1. Some say that any method is justifiable to bring out the facts of subversion because the security of the country must come first;

2. Others take the position that no matter what the suspicions of subversion are, no methods should be employed which may imperil the constitutional guaranties of civil liberties;

3. Still others take the position that the FBI is fully equipped to protect the security of the country and that other agencies should not engage in this work;

4. And finally, there are those who do not believe that the security of the country is

endangered at all and who hold that the whole matter had better be dropped.

This discussion continues in various forums to a greater extent than is generally realized because while some politicians feel that they have pushed it out of the way, the public interest in the two separate subjects of security and civil liberties continues.

One manifestation of this interest is the increasing criticism of the use of informants by the FBI and the refusal of that agency always to provide names. The Matusow case dramatized the use of the informant, as Matusow's pro-Communist associates anticipated. A liar is always an ugly creature, but a compulsive pride in being a liar is monstrous.

Few have gone sour

Of the hundreds of informants used by the FBI in its various activities from kidnaping to subversion, instances of informants gone sour have been trifling. Others may turn up to be wrong ones, but that is the chance that an investigative agency must take if it is to work at all. The FBI undoubtedly takes steps to guard against errors of personality and errors of data, but it cannot operate without informants or it will get no information.

Furthermore, such an organization must protect the anonymity of its informants. Stepping aside from the question of whether the Communist Party should be treated as an American political party or an arm of an alien conspiracy with which we are in conflict universally, if the latter view is accepted, it is necessary for the FBI to infiltrate the Communist Party. Those who do this work must be protected in their anonymity or the entire operation must fail. The decision then is not whether their names should be withheld, but whether this work should be done at all.

The responsibility of those who must make that decision is great because who can guarantee that there is no espionage, no sabotage, no treason in what we presently call peace?

If all is well, why do we spend so much on the preparation for war? Admittedly it is possible to go too far in the matter of defense of security, but what risks dare we take when we know that infiltration into another country's affairs has become a weapon of war?

This is the problem and it will not be shunted away by ignoring it.

Norway's Constitution Day

EXTENSION OF REMARKS

OF

HON. COYA KNUTSON

OF MINNESOTA

IN THE HOUSE OF REPRESENTATIVES

Tuesday, May 17, 1955

Mrs. KNUTSON. Mr. Speaker, today is the “Fourth of July” in Norway. Minnesota is noted for its high proportion of descendants of Nordic people. Under leave to extend my remarks, I should like to call your attention to the significance of this Independence Day celebrated by citizens of Norway in the Norwegian Embassy and around the world.

There is no national holiday in the world that is celebrated and honored more enthusiastically and sincerely than May 17, Norway's Constitution Day. And so it is this year, too. The day is

4. That the amount of money to be expended be limited to \$250; and

Resolved further, That upon the adoption of this resolution, a committee of two be appointed to present this matter with a copy of these resolutions to the board of supervisors together with a plan of action.

The Board of Supervisors of Sioux County did comply with the request of the Farmers' Institute as recorded in the county auditor's office, as follows:

April 8, 1903: On motion the board made an appropriation of \$150 to be used for an experiment station at the County Poor Farm. The committee appointed to superintend this work is: J. C. Emery, H. J. Vander Waa, and H. H. McKee, county farm superintendent. John Boeyink, auditor; William Dealy, chairman of the board; Charles Harmelink, member of the board; William Shimp, member of the board; J. H. Blatherwick, member of the board; John Smith, member of the board.

In the conduct of county demonstration farms the county furnished the land, labor, storage space, travel necessary in getting samples of corn and living expenses of college people while in the county and in addition the cash fund for incidentals.

We should perhaps note that Barton Morgan in his history of the extension service of Iowa State College, discussing the official creation of the extension service and its early development under Holden, says:

In 1903 Holden started the county farm demonstration work near Orange City in Sioux County. In 1904, 5 counties cooperated; and in 1906, 10 counties cooperated. The projects were with oats, alfalfa, corn, and quack-grass eradication. This county farm demonstration work, according to Holden, was the beginning of county agricultural agent work.¹⁹

But perhaps we should supply the story of that major event as Morgan was able to reconstruct it:

The county farm demonstration plots, or experiment stations as they were sometimes called, seem to have grown out of a discussion at a farmers' institute in Sioux County, at Hull, in the winter of 1903. The farmers were in the midst of a sharp argument when Holden entered the meeting. A Mr. Hawkins called upon Holden to give his opinion on the question of whether or not Ames was too far away and conditions too different for the experiments of the college to be of value in Sioux County.

Holden replied (Morgan, Barton, Notes on a Personal Interview with P. G. Holden, Ames, Iowa, May 23, 1932.), "Mr. Hawkins, you are discussing one of the biggest things in the world." Holden took the view that every county should put on demonstrations and have someone in the County to direct the demonstration projects. He would have this man advise the farmers as to the best solution of their problems and also to work with the boys and girls.

As a result of this discussion, county farm demonstration work was started on the county farm in Sioux County in the spring of 1903. County farms were chosen because they belonged to all the people and were centrally located. Field demonstrations and simple experiments were conducted with oats, alfalfa, corn, and the eradication of quack grass. Corn, however, received the chief emphasis. Holden was often called the Corn Man because he stressed corn so much.

In the fall of the year, large gatherings, or picnics, were held at each of the county

farms to view the results of the work. From 400 to 3,500 people usually attended these gatherings. The plan followed was for those interested to visit the plots in the forenoon and listen to an explanation of the work by some member of the extension department. At noon the people gathered for a picnic dinner, in family or neighborhood groups. After the dinner, programs of general interest were held in which some local people and 1 or 2 from the college took part. (Data Regarding the Organization of the Agricultural Extension Department, op. cit., pp. 37-38.) Data from these plots were published in circular form up to 1915.

From a beginning in Sioux County in 1903, the work grew rapidly for a number of years. In 1904, there were 5 counties; in 1906, there were 10 counties; in 1908 there were 14 counties; and in 1910 there were 16 counties. (Iowa State College. Annual Reports, Superintendent and Specialists of the Extension Department, 1911. Unpublished, Ames, Iowa.)

While section 2 of the first extension act in Iowa made provision for experimental work, the college trustees decided against experimentation in the extension department as it was otherwise provided for in the experiment station setup. The county farm demonstrations had in them an element of the experimental, but this work was finally discontinued in 1915. The county demonstration farms were however, a forerunner of the county agent plan of extension work which a little later came to occupy such an important place in Iowa.²⁰

Thus, not only Professor Holden but J. C. Emery, president; G. A. Sheldon, secretary; B. F. Hawkins, N. E. Williams, and E. S. Boomer, of the program committee, and others, including substantial attendance from the Dutch population of that area, initiated a much larger "wave of the future" than they could have realized.

For it appears that Sioux County in cooperation with Iowa State College established more than 50 years ago the fundamental basis of support that is now being carried out in cooperative extension work throughout the United States. The Sioux County demonstration in 1903 was a significant event in the development of extension work.

The Sioux County Demonstration Farm of 1903 qualifies for the high national honor of beginning county farm demonstration work because it was:

First. Organized at the request and on the initiative of a group of farmers—Sioux County Farmers' Institute.

Second. Supported by county appropriations and land at the request of farmers.

Third. Conducted in full cooperation with Iowa State College and this cooperation also included support from the United States Department of Agriculture.

¹⁹ Alfred Charles True, A History of Agricultural Extension Work in the United States, 1785-1923, USDA miscellaneous publication No. 15, October 1928. He also mentions that a group of South Carolina planters interested in indigo began to hold meetings about 1740. Agricultural fairs were held as early as 1644 in New Haven, Conn.

²⁰ Barton Morgan, A History of the Extension Service of Iowa State College, Ames, 1934, p. 3.

²¹ Alfred Charles True, A History of Agricultural Education in the United States, 1785-1925, USDA miscellaneous publication No. 36, July 1929, p. 24.

²² True, op. cit., p. 47.

²³ See Gladys Baker, The County Agent, the University of Chicago Press, Chicago, 1939, p. 4.

²⁴ See True, A History of Agricultural Extension Work in the United States, 1785-1923, op. cit., pp. 100-101.

²⁵ Report of the Secretary of Agriculture, 1903, USDA Rept. No. 76, Washington, 1903, p. 72.

²⁶ M. C. Burritt, The County Agent and the Farm Bureau, Harcourt, Brace & Co., New York, 1922, pp. 154-155.

²⁷ True, A History of Agricultural Extension Work in the United States, 1785-1923, op. cit., pp. 60-61.

²⁸ Report of the Secretary of Agriculture, 1904, USDA Rept. No. 79, Washington, 1904, pp. 27, 28.

²⁹ Report of the Secretary of Agriculture, 1902, USDA Report No. 73, Washington, 1902, pp. 8-9.

³⁰ M. C. Burritt, The County Agent and the Farm Bureau, op. cit., p. 154.

³¹ True, A History of Agricultural Extension Work in the United States, 1785-1923, op. cit., p. 63.

³² Burritt, op. cit., p. 160.

³³ True, A History of Agricultural Education in the United States, 1785-1925, op. cit., pp. 276, 277.

³⁴ True, A History of Agricultural Extension Work in the United States, 1785-1923, op. cit., p. 14.

In his other work, A History of Agricultural Education in the United States, 1785-1925, p. 119, he indicates 1871-72 as the beginning date but p. 158 says 1870-71.

³⁵ Report of the Secretary of Agriculture, 1902, USDA Report No. 73, op. cit., pp. 78-79.

³⁶ Russell Lord, The Agrarian Revival, American Association for Adult Education, New York, 1939, p. 49.

³⁷ Barton Morgan, A History of the Extension Service of Iowa State College, Ames, Iowa, June 1934, p. 24. Inasmuch as Morgan says "according to Holden," rather than taking a stand on the matter himself, we should note that the reference he gives is: Data Regarding the Organization of the Agricultural Extension Department, Iowa State College, Ames, Iowa. Unpublished notes, Extension Service files, 54 pp., no date.

³⁸ Morgan, *ibid.*, pp. 32-33.

Transportation Tax on Travel to Mexico, Canada, Central America, and the Caribbean Area

EXTENSION OF REMARKS OF

HON. DANTE B. FASCELL

OF FLORIDA

IN THE HOUSE OF REPRESENTATIVES

Tuesday, May 17, 1955

Mr. FASCELL. Mr. Speaker, I would like to bring to the attention of my colleagues 2 newspaper editorials, 1 from the Habana Post and 1 from the San Antonio News, which deal with the question of removing the transportation tax on travel to Mexico, Canada, and the Central American and Caribbean Sea areas—which are the only areas in the world which are still subject to this discriminatory tax.

I have introduced a bill to accomplish this purpose, as have several other Members of Congress. The revenue produced by this tax is not significant, but its existence is an absolute act of discrimination to those countries which are our

closest friends and whose continued good will is necessary to our western solidarity.

The editorials follow:

[From the Havana Post, Havana, Cuba, of May 6, 1955]

END OF AMERICAN TRAVEL TAX IS URGED BY CUBAN AIR GROUP—AIM AT ABOLISHING STATES' LEVY OF 10 PERCENT, PASSAGE SOUGHT FOR BILL PENDING IN CONGRESS

The elimination by the United States Congress of the tax discrimination now existing on travel to Mexico, the Caribbean, Central America, and Canada would be an effective contribution toward the development of Cuba's second industry—tourism—it was emphasized here yesterday by the Cuban Air Transport Association.

The Cuban association has joined the Air Transport Association of America in a campaign aimed at abolishing the existing 10 percent travel tax to this area.

The 1947 amendment to the transport tax law left travel to Mexico, Central America, the Caribbean area and Canada completely taxable, the Cuban ATA said, adding that the tax to Europe and South America was abolished or what was alleged to be the convenience of helping the economic reconstruction of those nations.

"Aviation companies believe," the ATA said, "that there is no longer any validity to that argument and no reason whatever to maintain this discrimination against the trips of Americans to countries like Cuba."

Under the current threats to Cuba of selling less sugar to the United States market, the ATA feels that removal of the discriminatory United States travel tax is more than justified.

The ATA said that with the backing of the American Chamber of Commerce of Cuba it has sent a letter to the United States State Department asking for cooperation in the efforts being made by airlines to have Congress abolish the tax.

Under a bill now pending in the United States Congress, introduced by Representative THOMAS B. CURTIS (Republican, Missouri), travel between the United States and Mexico, Central America and the Caribbean would be exempt from the tax on transportation of persons.

Both the Air Transport Association of America and the Cuban Air Transport Association endorse Representative CURTIS' bill and advocate for its early passage. CURTIS' bill makes no other change in the present law.

The reasons given by the ATA for passage of CURTIS' bill are:

(1) It removes the discrimination which now exists against travel to Mexico, Central America, the Caribbean and Canada and in favor of other international travel—"which cannot be justified on any logical grounds."

(2) Legislation of this kind has been endorsed by substantially all of the foreign countries involved, by the State Department, the Department of Commerce, the Bureau of the Budget, the Randall Commission and by national and international private organizations.

(3) It will be as successful in strengthening the economies of the Central American countries as the 1947 amendment was successful of strengthening the economies of European and South American countries.

(4) The revenue loss to the United States will be very small, if there is any loss at all. Estimates made by the Treasury Department, which assumed that no increase in travel to the countries concerned would result, are that the annual revenue loss would be approximately \$10 million. "Obviously, however, by increasing travel to Mexico, Central America, the Caribbean and Canada, the bill would produce increased tax revenues from the domestic portion of the travel, an in-

crease which can be expected to substantially offset or even exceed the estimated revenue loss."

[From the San Antonio News of May 6, 1955]
DEMAND REPEAL OF UNFAIR TAX ON TRAVEL TO NEIGHBOR LANDS

Within the month the House Ways and Means Committee in Washington is expected to act, favorably or unfavorably, on an amendment to the 1941 transportation tax that is of considerable importance to San Antonio and all Texas. Congress should hear from this area an emphatic demand that the amendment be approved.

The wartime transportation excise originally was levied primarily to discourage civilian travel, domestic and foreign. In 1947, in response to foreign appeals for a stimulant to American tourist travel to aid economic recovery, an amendment was passed to exempt from the 10-percent tax United States-purchased transportation in European and South American countries.

But transportation abroad, purchased in the United States, is still taxed from the point of origin to the limits of the northern portion of the Western Hemisphere, that is, in Mexico, Central America, the Caribbean area, and Canada. The effect, of course, is tax discrimination that discourages travel to those neighboring lands in favor of travel to other foreign countries.

Anything that discourages tourist trade with Mexico and Central America hurts San Antonio and Texas, which enjoys passing-through and stop-over trade from that source and substantial indirect benefits. But from any viewpoint, the discrimination is unfair and senseless.

Removing that discrimination is favored by the Eisenhower administration, the foreign countries involved, the Randall Commission, and various trade organizations. The amendment is endorsed by the San Antonio Chamber of Commerce Aviation Committee.

Both in self-interest and as good neighbors, Texans should urge their congressional delegation to push that amendment through.

Confusing and Discouraging

EXTENSION OF REMARKS

OF

CLARE E. HOFFMAN

OF MICHIGAN

IN THE HOUSE OF REPRESENTATIVES

Thursday, May 12, 1955

Mr. HOFFMAN of Michigan. Mr. Speaker, if there is one policy of the Eisenhower administration which has received the united support of Republicans, as well as substantial support of Democrats, it is the effort to get the Government out of businesses which can be carried on by individuals or private organizations.

This because thinking individuals know that, inasmuch as Government depends upon tax dollars for its existence, every time the Government eliminates a business which pays taxes it lessens its ability to operate—or must replace the lost tax by additional levies.

In the 83d Congress, without opposition, the House passed a bill introduced by me, the purpose of which was to get the Government out of taxpaying businesses. It was late in the session, hence, the bill did not reach the floor of the Senate.

The administration, by Executive action, has been trying to get the Government out of civilian activities, but legislation is needed.

May 12, last, when the bill making appropriations of \$31,488,206,000 for the Department of Defense came before the House, it carried a section which made it difficult for the administration to curtail Government operations. An amendment designed to further the administration's purpose to get the Government out of activities usually performed by taxpayers was first adopted by the House when in committee by a vote of 160 to 134, but, then on rollcall, was defeated by a vote of 102 to 184. Some Members for no apparent reason reversed their position.

INCONSISTENCY

When the amendment came on for a vote in committee, those who had supported a similar principle in the 83d Congress again consistently voted for it; but on the rollcall vote, many switched positions and voted against it.

Naturally, no Member attempts to tell another how he should vote but it certainly is surprising to see Members of Congress within an hour on as simple and sound a proposition as was this do an about face.

Perhaps one reason for a switch from a position designed to protect the taxpayers to one permitting the Government to engage in commercial activities was in part due to the fact that the Member had a Government enterprise in his District.

The vote not only found the leaders on the Republican side in opposite camps but it also found top-ranking members of the Committee on Appropriations on opposite sides.

DISCOURAGING

Here is the discouraging feature of that action. Everyone knows that, if the Federal Government is to transact the business normally carried on by taxpayers, whether it be production, transportation, merchandizing, or storage of any item, crowding the taxpayer out, ultimately it will destroy itself. Republicans missed the boat on this one. Reason—lack of vigilance, party organization, personal interest.

Research in the Development and Utilization of Saline Waters

SPEECH

OF

HON. CHARLES M. TEAGUE

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

Monday, May 16, 1955

The House in Committee of the Whole House on the State of the Union had under consideration the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters.

Mr. MILLER of Nebraska. Mr. Chairman, I yield 2 minutes to the gentleman from California [Mr. TEAGUE].

Mr. TEAGUE of California. Mr. Chairman, I should like to associate myself with those who have spoken in support of this bill. I represent a rather unique district in the State of California. We have 400 miles of coastline. Directly in from that coastline we have 400 miles of territory which desperately and urgently needs water. Anything that can be done along this line experimentally certainly will be most useful and beneficial not only to the State of California, but to the country as a whole.

Why the United States Supports Our Merchant Marine

EXTENSION OF REMARKS OF

HON. JOHN MARSHALL BUTLER

OF MARYLAND

IN THE SENATE OF THE UNITED STATES
Tuesday, May 17, 1955

Mr. BUTLER. Mr. President, it is particularly encouraging to note that people residing in other than seaport areas are acquiring an awareness of the problems of the American merchant marine. Indeed, this should be a matter of universal and vital concern.

With these thoughts in mind, I ask unanimous consent to have printed in the Appendix of the RECORD an editorial entitled "Why the United States Backs Our Merchant Marine," which was printed in one of Maryland's fine weekly newspapers, the Pilot, of Union Bridge, Md., on May 5, 1955.

There being no objection, the editorial was ordered to be printed in the RECORD, as follows:

WHY THE UNITED STATES BACKS OUR MERCHANT MARINE

Just about everyone is in favor of a strong American merchant marine. But a great many people are not familiar with the problems involved in maintaining it. So an explanation is in order of why congressional approval of President Eisenhower's request for \$115 million in ship operating subsidies for the 1956 fiscal year is needed.

That explanation has been offered, in simple yet comprehensive form, by the Committee of American Steamship Lines.

To begin with, these subsidies are actually "differential payments." They are designed to help offset the enormous advantage that foreign merchant marines, with which our ship operators must compete, have in the all-important matter of operating costs. United States Maritime Administration figures show that in a recent year, it cost \$20,800 a month to operate a typical cargo ship under our standards. By contrast, the same ship could be operated for \$4,700 a month under British standards, and \$4,400 under Asian standards. Thus, American costs are nearly five times as great. One of the principal reasons for this difference, incidentally, is found in our seamen's wages, working conditions, and other benefits.

The \$115 million requested for 1956 is lower than the 1955 figure, which was \$125 million. Even so, both years represent a substantial increase over appropriations made before and since the end of World War II. The reasons for this increase are twofold. First of all, there is a backlog of unpaid subsidy obliga-

tions to the steamship companies totaling about \$120 million, some of them going back 7 years. The plan is to gradually catch up on these, so a part of the requested appropriation would go for prior year commitments. Second, ship operating costs have tremendously increased since the end of World War II. As an example, monthly base wages for a C-2 cargo ship operation are up 77 percent since 1947, overtime wages are up 18 1/2 percent, and food supply, maintenance, and repair costs have jumped 124 percent. Other factors resulting in higher operating payments are an increased number of voyages by American ships engaged in world trade, a governmental approved increase in the number of trade route operators, and an increase in the number and size of our passenger fleet.

As for the need for United States merchant ships, endless facts could be cited. To take but one, of 38 critical industrial metals and materials, we are self-sufficient in only 9—we must import all or part of the others, including two-fifths of our copper and nearly a third of our lead and zinc. And we export vast quantities of foods and manufactured goods across the oceans—exports which account for an important share of our employment and national income. In the light of world conditions, it would be an invitation to disaster to depend on foreign-flag merchant marines to do the job for us. Through no fault of theirs or ours, we could lose their services almost overnight.

Last January, President Eisenhower said that the United States requires "a foreign economic program that will stimulate economic growth in the free world through enlarging opportunities for free enterprise and competitive markets." The American merchant marine is an indispensable element in that.

The 75th Anniversary of Marquette University

EXTENSION OF REMARKS OF

HON. CLEMENT J. ZABLOCKI

OF WISCONSIN

IN THE HOUSE OF REPRESENTATIVES
Tuesday, May 17, 1955

Mr. ZABLOCKI. Mr. Speaker, this year marks the 75th anniversary in the life of Marquette University, that distinguished institution of higher learning located in the district which I represent in Congress.

For three-quarters of a century, Marquette University has been dedicated to the pursuit of truth and to the service of its community. The university has fulfilled these tasks with rare distinction. Under the guidance of the dedicated men of the Society of Jesus, the university has grown in prominence in the field of education, and has made a tremendous impression upon our community and upon our Nation.

It is with a deep sense of pride that I join with the students, alumni, and friends of Marquette University in extending my sincere congratulations to my alma mater upon this memorable occasion.

In the belief that it will prove of considerable interest to the membership of this body, I should like to include in the RECORD a brief history of Marquette University in which the university's aims

and achievements are succinctly restated and appraised. The résumé stresses the philosophy of the university: "The pursuit of truth to make men free":

The academic year, 1955-56, marks the 75th year in the life of Marquette University. This anniversary affords Marquette an appropriate occasion for restating its basic aims and for appraising its achievements during the past 75 years in the hope of deepening the mutual understanding that exists between the university and those it serves.

To understand fully the aims and achievements of Marquette University it is necessary to grasp the distinctive spirit which has motivated Marquette's growth and development for the past three-quarters of a century.

It was this spirit which brought a group of pioneering Jesuit priests to the western shores of Lake Michigan in 1881 to teach the truths they knew of religion, science, and the humanities. Here in Milwaukee they established a small Catholic men's college, which later became Marquette University, and dedicated it to the pursuit of truth and to the service of its community.

Behind the efforts of these pioneering educators was the inspiration of two great men, St. Ignatius of Loyola, the founder of the Society of Jesus, and Pere Marquette, the French Jesuit missionary and explorer. Today, this same spirit continues to inspire the teachers and students of Marquette University and to give the university its unique character and quality.

In 1534, St. Ignatius of Loyola dedicated himself, together with six of his friends, to the "greater honor and glory of God" and founded the Society of Jesus. One of the works with which he charged his followers was the education of youth and in his constitutions he set down the basic principles which have continued to this day to be the foundation of all Jesuit education.

St. Ignatius directed his followers to develop the intellects of their students in knowledge and wisdom so that they would go forth an leaven society with the spirit of Christ. They were to teach the whole truth, drawing both from the discoveries of human reason and from divine revelation in order to develop the whole man, intellectually, morally and socially.

In 1673, the young Jesuit missionary and explorer, Pere Marquette, ventured into the uncharted wilderness of the American Middle West. He came as a disciple of St. Ignatius to teach the Indians of this area the truths of Christianity; he came, also, to learn the truths of this mysterious country, to discover the mighty Mississippi River and other natural resources of this new land.

From the scholarly St. Ignatius, Marquette University has drawn the ideas and spirit which form the basic aims of its instruction. From the courageous Pere Marquette, the university has inherited its pioneering spirit and its special dedication to the people of Milwaukee and the Middle West.

During its 75th anniversary year, Marquette University plans to demonstrate more fully how this spirit has motivated its own development as a center of higher learning. Because the principles of knowledge and truth are being subjected to violent attacks on all fronts today, any attempt to appraise the position of a single university in the field of learning also involves the broader question of the role of learning itself in our society today.

As a consequence Marquette proposes to devote some of its efforts during the 75th anniversary year to developing its celebration theme, "Learning," which it describes as "The pursuit of truth to make men free." To this project it has invited the participation of scholars and educators from throughout the world, along with its alumni, students, benefactors, and other friends.

THE AIMS OF MARQUETTE UNIVERSITY

From its earliest beginnings, Marquette University has sought to serve the common good by a pursuit of truth by all its members. The university has committed itself to the formation of its students in truth according to their abilities, especially that truth which will enable them to understand the full purpose of living. Marquette seeks as well to enlarge truth as possessed by its own teachers and students, thus enlarging truth itself in the community it serves. Through its teaching and its research it seeks to help men grow in truth.

This growth in truth it believes is vital to the proper development of man. For while man has been created with freedom of choice, his own ignorance of what is true and good prevents him from properly exercising his freedom and reaching the fullness of his nature. By assisting man to learn what is really true and good, so that he can attain the fullness of his freedom, the university serves the cause of the greatest common good, human liberty. By its pursuit of truth, therefore, the university serves to make men truly free.

THE GROWTH OF MARQUETTE UNIVERSITY

These basic aims of Marquette University spring solidly out of tradition, but the changing, growing times in America through which Marquette has grown have called for adjustments and adaptations. The 75 years of Marquette University's life have witnessed the industrialization and urbanization of American society. This era saw also the realization of the American hope that college education would be brought within the reach of all qualified young men and women, regardless of wealth or class.

In keeping with the instructions of St. Ignatius to adapt educational procedures to the varying circumstances of times, places, and persons, Marquette University has met these changes and differences in a unique, pioneering fashion.

What began as a single building, a handful of students, and four Jesuit fathers soon grew into an expanded college of liberal arts culminating in a graduate school. And these were supplemented by business and professional schools which included business administration, engineering, journalism, nursing, speech, medicine, dentistry, and law.

What originated as a men's college became the first Catholic coeducational university in America. Marquette also was the first Catholic university to offer summer-school classes, designed originally to meet the needs of Catholic teachers. An evening division, with cultural and professional classes, was also instituted to meet the special needs of an expanding industrial and urban community.

These and many other innovations were accomplished, however, without any abandonment of Marquette's primary dedication to the pursuit of the truth which is unchanging. Only the ways of discovering and teaching the truth have changed.

MARQUETTE UNIVERSITY TODAY

Today, more than 9,000 students fill the classrooms of Marquette University from early morning until late evening, seeking the knowledge and learning offered by its 77 departments. These students come from all the States in the Union and from many foreign lands. The largest percentage, of course, are natives of the city of Milwaukee and the State of Wisconsin.

The subjects they study range from French literature to the theories of choice; from jurisprudence to orthopedic nursing; from electronics to exodontics; and from the history of the theater to banking and finance. And for the young man seeking a career in the armed service, there are courses offered by the Navy ROTC and the Army ROTC units on the campus.

These classes are conducted by 860 full or part-time professors and instructors, 45 of whom are priest members of the Society of Jesus. As university teachers, these faculty members are also engaged in research and scholarly activities. These activities include both basic and applied research, ranging from scientific studies seeking a cure for the disease of cancer to philosophical studies seeking a clearer understanding of the act of judgment. Some of the projects offer direct assistance to the local business and industrial communities.

To accommodate all this teaching and research, the Marquette campus includes more than 30 main buildings, the newest of which are the memorial library, the Brooks Memorial Union, the College of Business Administration, O'Donnell residence hall, and the medical-dental library addition.

This year more than 1,000 graduates will leave Marquette University and return to their communities to become active, participating members of society. Besides educating this group of young men and women, which is Marquette's major contribution to the good of society, the university will conduct 44 professional institutes for the professional and business leaders of its area. Hundreds of men and women will return to the campus to learn of the latest developments in their fields and to improve their understanding of their work through these annual short term postgraduate courses.

The special clinics and services of the university, such as the speech correction clinic, the dental clinic, and the bureau of business and economic research, will also be used by thousands of people during the year, thus adding to Marquette's contribution to its community and its members.

From modest beginnings 75 years ago, Marquette has grown into a dynamic university community. Thousands of teachers and students are today earnestly engaged in the pursuit of truth, strengthening their grasp of the liberal arts and improving their skills in the various professions.

SEVENTY-FIFTH ANNIVERSARY CELEBRATION PLANS

In preparation for the 75th anniversary celebration, Marquette has sponsored the publication of two scholarly books written by members of its faculty which give a deeper understanding of the university.

One, *The Story of Marquette University*, by Father Raphael Hamilton, S. J., details the historical growth of the university in Milwaukee. The other, *St. Ignatius' Idea of a Jesuit University*, by Father George Ganss, S. J., analyzes the basic principles of education which the founder of the Society of Jesus set forth in his constitutions. Both were published by the Marquette University Press.

During the past year more than 100 members of the faculty have been engaged in an intensive self-analysis study of the university. At the direction of the president, these faculty members have compiled a report of the present status of the university in all its departments and activities. Within the coming months, these faculty members will evaluate present practices and personnel and will make recommendations for the future planning and development of the university. Out of this will come the Blue print for the Marquette of Tomorrow.

For the celebration year itself the faculties of the university, aided by a special 75th anniversary celebration committee composed of civic, religious and industrial leaders, have planned a series of special events aimed at demonstrating the aims and achievements of the university.

The exact details and character of these events will be disclosed as they are developed. Some of the major activities that are planned, however, include the following:

More than 30 learned societies and professional groups are scheduled to hold their

annual conventions on the campus during the celebration year. These will bring to the community many of the Nation's more brilliant scholars and leaders for lectures and discussions.

The university will sponsor a series of scholarly discussions of pertinent problems under the general title of "Learning and American Life." Speakers will include university faculty members, other famous scholars, and national and local leaders.

The university plans to award honorary degrees to several world leaders who have distinguished themselves by their service to the welfare of society.

Marquette will present the Pere Marquette award to religious, civic and educational leaders who exemplify the ideals and teachings that the university upholds.

A series of special religious observances has been planned, featuring religious leaders of the Nation and the State.

An arts festival will be held, to exhibit the creative and dramatic talents of the community.

In addition to these special events, the 75th anniversary will be emphasized at all the regularly scheduled campus events during the year—such as lectures, dramatic and cultural presentations, homecoming and the student social activities.

Through this series of academic, cultural, religious and social events during its 75th anniversary year, Marquette University expects to emphasize its heritage of educational principles from St. Ignatius and its pioneering spirit from Pere Marquette and to demonstrate its own capabilities as a center of learning. Marquette hopes that in this way men and women will come to recognize more fully their need for the university in their struggle for truth and freedom.

Politics and the Gospel

EXTENSION OF REMARKS OF

HON. JOHN MARSHALL BUTLER

OF MARYLAND

IN THE SENATE OF THE UNITED STATES

Tuesday, May 17, 1955

Mr. BUTLER. Mr. President, at best any discussion of politics and religion in the same breath is a delicate one, reflecting age-old beliefs and convictions. Courageously, and with rare insight, Rev. Iain Wilson, of the Franklin Street Presbyterian Church, of Baltimore, Md., has treated this subject. I therefore ask unanimous consent to have printed in the Appendix of the RECORD his sermon of May 1, 1955, entitled "Politics and the Gospel."

There being no objection, the sermon was ordered to be printed in the RECORD, as follows:

POLITICS AND THE GOSPEL

Text: Ephesians 1: 22: "God * * * hath put all things under His feet."

High up on the rocky face of a mountain that overlooks the ancient caravan route from Persia to Babylon, there can still be seen in sculptured relief a trio of heroic figures, confronting a row of cringing suppliants begging for mercy.

That splendid relief was carved there some 2,500 years ago on the orders of one of the great Persian warrior-kings, Darius the First. It commemorates his victory over a confederation of rebels who had sought at the outset of his reign to dislodge him from his throne.

If you look more closely, you can see that Darius himself, standing head and shoulders

5. ROADS. The Public Works Committee reported without amendment H. R. 5923, to authorize appropriations for completion of the Inter-American Highway (H.Rept. 611) (p. 5837).
6. FARM LABOR. The Agriculture Committee voted to report H. R. 3822, extending for $3\frac{1}{2}$ years (until June 30, 1959), the program of recruitment of agricultural workers from Mexico (p. 1453).
7. ORGANIZATION. Rep. Patman discussed and criticized certain recommendations of the Hoover Commission, especially those relating to veterans and their dependents (pp. 5821-3).
8. BANKING AND CURRENCY. The Banking and Currency Committee reported without amendment H. R. 6227, to provide for the control and regulation of bank holding companies (H. Rept. 609) (p. 5837).
9. ELECTRIFICATION; LANDS. Both Houses received Hawaiian Legislature resolutions requesting REA to investigate the possibility of setting up a rural-electrification cooperative to serve certain areas in Hawaii, and urging the amendment of certain patents of Government lands containing restrictions as to the use of such lands (pp. 5837, 5742).

SENATE

10. ROADS. Continued debate on S. 1048, to authorize appropriations for continuing the construction of highways. Agreed to the committee amendments en bloc. Sen. Martin submitted an amendment in the nature of a substitute which was still pending at recess. (pp. 5754-92, 5795-5809.)
11. SECOND URGENT DEFICIENCY APPROPRIATIONS, 1955. The appropriations Committee/
amendment this measure, H. J. Res. 310, which provides funds for VA readjustment loans and the Hoover Commission (S. Rept. 371) (pp. 5744, 5792).
reported without
12. BOUNDARY FENCE. The Interior and Insular Affairs Committee reported without amendment S. 76, authorizing appropriations for the construction, operation, and maintenance of the Mexican western land boundary fence project (S. Rept. 373), and Sen. Goldwater's name was added as co-sponsor of the bill (p. 5745).
13. FOREST LANDS. The Interior and Insular Affairs Committee reported with amendments S. 55, to authorize the United States to buy lands in the Coconino and Sitgreaves National Forests from the Aztec Land and Cattle Co., Ltd. (S. Rept. 369) (p. 5744).
14. SALT-WATER RESEARCH. The Interior and Insular Affairs Committee reported with amendments S. 516, extending the program of research in the development and utilization of saline waters (S. Rept. 370) (p. 5744).
15. FLOOD CONTROL. Sen. Fulbright inserted a resolution adopted by the Arkansas General Assembly petitioning Congress to provide funds for the construction of the Greer's Ferry project on the White River in Arkansas (p. 5743).
16. AIR POLLUTION. The Public Works Committee ordered reported with amendments S. 928, to amend the Water Pollution Control Act to provide for the control of air pollution (p. 1452).
17. LEGISLATIVE PROGRAM as announced by Sen. Johnson: Today the Senate will vote on the postal-pay bill and then will resume debate on the road bill. It is

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

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For actions of May 23, 1955
84th-1st, No. 85

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HIGHLIGHTS: Senate committee reported Mexican fence bill and salt-water research bill. Senate debated road bill. House agreed to conference report on Treasury-Post Office appropriation bill and to Senate amendments to bill to provide additional surplus property for education and health agencies. Both bills ready for President. House Rules Committee cleared bills for loans to small reclamation projects and for donations of surplus commodities. House committee ordered reported Mexican farm labor bill. President approved agricultural appropriation bill and bill to repeal ACP tie-in with acreage allotments.

HOUSE

1. APPROPRIATIONS. Agreed to the conference report on H. R. 4876, the Treasury-Post Office appropriation bill for 1956 (pp. 5812-3). This bill will now be sent to the President.
2. RECLAMATION. The Rules Committee reported a resolution for consideration of H. R. 5881, to provide for Federal cooperation in non-Federal projects and for participation by non-Federal agencies in Federal projects (pp. 5814, 5837).
Reps. Holifield and Dawson (Utah) discussed the proposed upper Colorado River project and some of the effects it would have on agriculture (pp. 5825-8).
3. SURPLUS COMMODITIES. The Rules Committee reported a resolution for consideration of H. R. 2851, to authorize CCC to process food commodities for donation to the needy through HEW (pp. 5821, 5837).
4. SURPLUS PROPERTY. Concurred in Senate amendments to H. R. 3322, to amend the Federal Property and Administrative Services Act of 1949 so as to improve the administration of the program for the utilization of surplus property for educational and public health purposes (pp. 5813-4). This bill will now be sent to the President.

AMENDING THE ACT OF JULY 3, 1952, RELATING TO
RESEARCH IN THE DEVELOPMENT AND UTILIZATION
OF SALINE WATERS

MAY 23 (legislative day, MAY 2), 1955.—Ordered to be printed

Mr. ANDERSON of New Mexico, from the Committee on Interior and
Insular Affairs, submitted the following

R E P O R T

[To accompany S. 516]

The Committee on Interior and Insular Affairs, to whom was referred the bill (S. 516) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, having considered the same, report favorably thereon, with amendments, and recommend that the bill, as amended, do pass.

The amendments are as follows:

AMENDMENTS

The amendments recommended by the committee are as follows:
Page 2, line 3, insert new section (2) as follows:

(2) by modifying section 3 of said Act to add the following: "Similarly, the fullest cooperation by and with the Atomic Energy Commission and the Civil Defense Administration in research and in determining the future needs of the Nation with respect to potable water and ways and means to provide same shall be carried out in the interest of achieving the objectives of the program."

Page 2, line 3—strike out "(2)" and insert "(3)."

Page 2, line 5, strike out "\$6,000,000" and insert "\$10,000,000."

Page 2, line 17, strike out "more" and insert "less."

Page 2, line 17, strike out "\$500,000" and insert "\$2,500,000."

Page 3, line 18, after word "Federal", insert "or educational institution (State or private)."

Page 3, line 20, change period to semicolon; strike out quotation marks and insert the following:

Provided, That not to exceed 10 per centum of the funds available in any one year for research and development may be expended in cooperation with public or private agencies in foreign countries in the development of processes useful to the program in the United States: *And provided further*, That contracts or

agreements made in pursuance of this proviso shall provide that the results or information developed in connection therewith shall be available without cost to the program in the United States herein authorized.

PURPOSE OF THE BILL

The bill as amended would extend the Saline Water Act of 1952 to provide not only for the uninterrupted continuance of the saline-water program but would authorize the financing of expedited activities in saline-water conversion research and development. Emphasis is placed on the urgency of bringing to the point of effective tests in the field or pilot plants of economically feasible processes for converting or refining sea water and other saline waters to potable fresh water for agricultural, industrial, municipal, and other beneficial uses. Concentration of the best scientific knowledge on the subject in the field of Government, education, and private industry, to achieve effective results is a major objective of the bill as amended.

When the program was inaugurated by the 82d Congress in 1952, the objectives were based primarily on strictly domestic requirements as then foreseen. For instance the National Geographic magazine, August 1952, printed an article by Nichols and Colton which told of the worldwide apprehension in these words:

When drought hangs hot over the land, when fields parch and wells run dry, men in many parts of the world, in their seasons look to the sky and pray for water—maya, shui, pani in Arabic, Chinese, Hindustani, respectively.

In 1952 the population of the United States exceeded 156 million. Today, it is in excess of 163 million. By 1975, the Nation's population will exceed 200 million.

The President's Paley Commission in June 1952 reported:

Daily water use in the United States exceeds 185 billion gallons annually, or 1,100 gallons for each man, woman, and child, for municipal, rural, direct industrial, and irrigated agricultural purposes.

By 1975, the estimated water requirements in the United States will have doubled to more than 2,200 gallons per person annually.

Municipal and rural uses will increase at least 50 percent in the same period.

Direct industrial uses will be $2\frac{1}{2}$ to 3 times as great, an increase of 170 percent in less than 25 years.

Irrigated agricultural requirements will expand at least 25 percent with the increased demand extending to various sections of the country in addition to the arid and semiarid western areas where irrigation is essential to sustain agriculture. This expansion involves the demineralization of brackish water to assure its suitability for irrigation.

It was in recognition of these factors outlined that undoubtedly led the Congress to this declaration in Public Law 448, 82d Congress:

That, in view of the acute shortage of water in the arid areas of the Nation and elsewhere and the excessive use of underground waters throughout the Nation, it is the policy of the Congress to provide for the development of practicable low-cost means of producing from sea water, or from other saline waters, water of a quality suitable for agriculture, industrial, municipal, and other beneficial consumptive uses on a scale sufficient to determine the feasibility of the development of such production and distribution on a large-scale basis, for the purpose of conserving and increasing the water resources of the Nation.

All that the 82d Congress recognized continues to reflect the imperative need for speeding the objectives of the program. There is, however, the committee finds, the urgency of recognizing the fact that we are now living in an atomic age where the destruction of a water supply system—a single reservoir—would imperil millions of people even though the city itself with its buildings and facilities might remain unscathed. Consequently, ways and means must be found and without undue delay—for perfecting devices, methods or whatever the facilities may be designated that can be made available any time or any place in the event of a national emergency.

This committee is not acting in the role of an alarmist, but it brings facts and circumstances of this character to the attention of the Senate and the Congress as the basis for recommending the amendments it proposes to S. 516.

In short, the Committee proposes that the Congress authorize expanded implementation of the saline-water program so that the Department of the Interior can proceed to get results. It would anticipate that with an affirmative understanding of the problem, the intent of Congress, and its crucial implications, technical and legal roadblocks would be leveled by liberal administrative interpretations so that results may be registered in accord with the intent of the Congress.

In the irrigated agricultural areas, principally in the western third of the Nation, water suitable for the production of crops is imperative. Brackish supplies of surface or underground water threaten extensive irrigated areas that are vital to the maintenance of the economy of established areas in 17 Western States.

The committee has been impressed with the interest in the saline-water program in California and the intermountain States which have been seeking solutions of the problems growing out of controversies over the waters of the Colorado River. As evidence by the support of the program in the House committee and in debates on a companion bill on the floor, the possibilities of refining ocean water for potable uses in Pacific coast areas is receiving more and more support. The rapid growth in population, and the expansion of irrigated agriculture and industry in southern California and Arizona make imperative the development of new sources of fresh water. This result is inescapable, it appears to the committee, regardless of the outcome of litigation and controversy over the waters of the Colorado River.

MORE USE OF GOVERNMENT LABORATORIES

The committee stresses the view expressed in section (1) of the bill that greater use should be made of existing Federal scientific laboratories for research and technical development work. This activity looks to determination of the lowest economical investment and operating costs as well as the development of the best plant designs and conditions of operating pilot plants and for field tests that may be found necessary and desirable to bring about demonstrable results. In the proposed authorization of additional funds for work in Federal laboratories, provision is also made for expenditures in similar facilities of State and private educational institutions.

Cognizance was also taken by the committee of the potentials of the saline-water program as an essential means of aiding cities and towns

in the event of emergencies that might result in the destruction of municipal water systems or impair sources of supply that are vital to the survival of vast segments of the population. An amendment to the bill requires close cooperation and coordination of the saline-water program with and by the Atomic Energy Commission and Civil Defense Administration in research and in determining the future needs of the Nation with respect to potable water and ways and means to provide adequate supplies. The 1952 act provided for cooperation by and with the Department of Defense and other Government agencies, Federal and State, including educational institutions. National and world conditions emphasize the desirability of tying the saline-water program in directly with the Atomic Energy and Civil Defense activities.

MORE FUNDS FOR RESEARCH AND DEVELOPMENT

An amendment to section 3 increases the authorized appropriations to \$10 million from \$6 million, as proposed in the bill as introduced in extending the program from 1958 to 1963 or 10 years from the original initiation in 1953. Because of the nature of research and related activities, more flexibility is provided in administering contracts, grants, or agreements as the authorization period draws to a close.

The act of 1952 limited appropriations for the initial 5-year period to \$2 million. The progress made in the program in the comparatively brief period it has been in operation justifies the confidence of the original sponsors of the legislation and warrants its continuance with greater financial support, the committee feels.

For instance, at the beginning of the program the cost of converting sea water to fresh water by the most widely recognized processes then in use was estimated at from \$400 to \$500 an acre-foot. The initial cost goals in the program were set at \$125 per acre-foot for converting sea water to fresh for municipal purposes and \$40 per acre-foot for irrigation supplies. Costs of demineralizing brackish water of lower saline content available for irrigation or domestic use in inland areas were proportionately less.

Field tests now in progress in Arizona in connection with an irrigation district and scheduled for South Dakota on municipal water will point toward the economical results of at least one process developed by the program in cooperation with a private concern. Surveys indicating the location of inland irrigated areas where brackish water is imperiling irrigation supplies have been made. The concentration on the demineralization processes is in recognition of the vital place irrigation and inland water uses for industrial, municipal, and domestic purposes have in the national economy.

Although much work remains to be done before the initial goals are fully realized, the objectives are being approached and it is believed they can be reached and costs lowered with a vigorous approach, more adequately financed. In other words, the results to date indicate that the conversion of sea water to fresh water at a price which municipal users and some industries might pay and the demineralization of brackish water for irrigation and other inland uses may be in sight.

Recent results have indicated that no single process will provide fresh water for all purposes at all locations and under all circum-

stances. Thus, it is desirable that several different principles, processes, and combinations of processes be investigated and developed concurrently.

In addition, it is becoming increasingly apparent that as the cost of energy is a limiting factor in any process, noneconventional low-cost energy must be investigated in connection with process development and use. As has been pointed out heretofore, the energy factor is of the utmost importance.

Testimony presented to the committee makes it clear that the benefits from successful development of low-cost saline-water-conversion methods will be felt in all parts of the Nation as well as other parts of the world.

For these reasons, the committee concluded that a substantial increase in the authorized appropriation would be in the interest of the national welfare. Hence, increase in the appropriation to \$10 million for the 10-year period was considered the minimum that should be made available for all facets of the program.

As previously indicated the committee concurs in the view that greater use should be made of Federal scientific laboratories so that the program may have the benefit of independent evaluations of the more promising processes. However, it was felt that with the increased total authorization of funds, a greater proportion should be available for research and development in Federal laboratories as well as those of State and private educational institutions, which are qualified to do effective laboratory work in this field. The fund specified for laboratory work of State and private institutions is intended to be in addition to any contracts or grants to educational institutions for other than strictly laboratory activities.

COOPERATION WITH FOREIGN ACTIVITIES

The committee agrees with the view that it is imperative that all reasonably promising solutions should be explored irrespective of the geographical location of the research. Consequently, an amendment is included in the bill as reported which would permit limited expenditures in cooperation with public or private agencies in foreign countries with the proviso that the results of such cooperation shall be available without cost to the program in the United States. This exchange of ideas and results should be invaluable since many foreign areas are confronted by water problems that are as acute, if not more so, than those in the United States.

In connection with contracts, agreements, or grants under the program, either in this country or abroad, the contractors or recipients should be required to coordinate specific activities within their own fields or areas so as to minimize the administrative supervision required with the limited funds available to the Department. This observation by the committee leads to the suggestion that the Secretary of the Interior and his advisers should examine and reexamine the operations of the program with a view to possible concentration of the activities in the direction of limiting contracts, grants, or agreements to the most promising processes.

OPERATIONS OF THE PROGRAM

The committee observes that the administration of the saline-water program in the Department of the Interior is being continued as a responsibility of the Office of the Secretary similar to the approach inaugurated under the preceding administration. It agrees with the House committee's observations that this arrangement is preferable to assigning the activity to one bureau or agency. Full advantage should be taken of the expert knowledge in the Geological Survey, Bureau of Reclamation, Bureau of Mines, or elsewhere in the Department, or in any other Government agency, including use of laboratory facilities for which funds are authorized for expenditure other than for the administrative activities of the program within the appropriation limitations for the Department. The committee's intention is to provide adequately within the limits of the overall appropriation for laboratory and field tests in cooperation with Federal agencies as well as State and private educational institutions looking to energization of an action program.

It is the committee's understanding that the expanded and accelerated program might best be carried out by emphasizing the urgency of bringing research and development to satisfactory conclusions that will produce results through (1) federally financed contracts with private scientists and engineers, educational institutions, scientific organizations, and engineering firms for conducting scientific research as well as existing Federal laboratories for independent evaluation of proposals; (2) encouraging development of saline-water conversion processes by correlating and coordinating efforts through laboratory and field tests and otherwise; (3) stimulating the interest of private and business organizations and individuals in the program; (4) making careful engineering studies to ascertain lowest investment and operating costs, as well as determine best plant design and conditions of operation; and (5) cooperating with public and private agencies in foreign countries through financial aid and exchange of ideas.

The committee has been impressed with the continued interest and association with the program of the members of the advisory group, originally named by a former Secretary of the Interior in 1952. It is a healthy indication of the recognition of the potentials and objectives of the program that outstanding educators, industrialists and scientists continue their interest and concern with the objectives originally outlined.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., March 2, 1955.

Hon. JAMES E. MURRAY,
*Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.*

MY DEAR MR. CHAIRMAN: This will acknowledge Mr. Stewart French's letter of January 20, 1955, requesting the views of the Bureau of the Budget on S. 516, a bill to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters.

The proposed legislation would amend the existing act by extending the life of the program from 5 years to 10 years for active research with 3 additional years to complete existing research projects and to correlate data and publish results. In addition, this bill would increase the maximum authorization for the program from \$2 million to \$6 million. Within this authorization the maximum amount for departmental expenditures would be raised from \$500,000 to

\$1,500,000. The amendment further permits the expenditure of not more than \$500,000 for work in Federal laboratories.

The Department of the Interior and the National Science Foundation have reported to this Bureau that they consider this to be an important area of research and therefore recommend enactment of this legislation.

The Bureau of the Budget concurs in the views expressed above and recommends that your committee give favorable consideration to this bill.

Sincerely yours,

DONALD R. BELCHER, *Assistant Director.*

○

Calendar No. 374

84TH CONGRESS
1ST SESSION

S. 516

[Report No. 370]

IN THE SENATE OF THE UNITED STATES

JANUARY 18, 1955

Mr. CASE of South Dakota introduced the following bill; which was read twice
and referred to the Committee on Interior and Insular Affairs

MAY 23 (legislative day, MAY 2), 1955

Reported by Mr. ANDERSON, with amendments

[Omit the part struck through and insert the part printed in italic]

A BILL

To amend the Act of July 3, 1952, relating to research in the
development and utilization of saline waters.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C.,
4 secs. 1951 ff.), is hereby amended as follows:

5 (1) By modifying subsection (a) of section 2 of said
6 Act so as to read: "by means of research grants and contracts
7 as set forth in subsection (d) of this section and by use of
8 the facilities of existing Federal scientific laboratories within
9 the monetary limits set forth in section 8 of this Act, to
10 conduct research and technical development work, to make
11 careful engineering studies to ascertain the lowest invest-

1 ment and operating costs, and to determine the best plant
2 designs and conditions of operation”.

3 (2) *by modifying section 3 of said Act to add the*
4 *following: “Similarly. the fullest cooperation by and with*
5 *the Atomic Energy Commission and the Civil Defense*
6 *Administration in research and in determining the future*
7 *needs of the Nation with respect to potable water and ways*
8 *and means to provide same shall be carried out in the*
9 *interest of achieving the objectives of the program.”.*

10 ~~(2)~~ (3) By modifying section 8 of said Act so as to
11 read: “There are authorized to be appropriated such sums,
12 but not more than ~~\$6,000,000~~ *\$10,000,000* in all, as may be
13 required (a) to carry out the provisions of this Act during
14 the fiscal years 1953 to 1963, inclusive, (b) to finance for
15 not more than two years beyond the end of said period such
16 grants, contracts, cooperative agreements, and studies as may
17 theretofore have been undertaken pursuant to this Act, and
18 (c) during the same additional period plus one more year, to
19 correlate, coordinate, and round out the results of studies
20 and research undertaken pursuant to this Act. Departmental
21 expenses for direction of the program authorized by this Act
22 and for the correlation and coordination of information as
23 provided in subsection (d) of its section 2 shall not exceed
24 \$1,500,000, and not ~~more~~ less than ~~\$500,000~~ *\$2,500,000*
25 shall be expended for research and development in Federal

1 or educational institution (State or private) laboratories.
2 Both of said sums shall be scheduled for expenditure in
3 equal annual amounts insofar as is practicable: *Provided,*
4 *That not to exceed 10 per centum of the funds available in*
5 *any one year for research and development may be expended*
6 *in cooperation with public or private agencies in foreign*
7 *countries in the development of processes useful to the pro-*
8 *gram in the United States: And provided further, That con-*
9 *tracts or agreements made in pursuance of this proviso shall*
10 *provide that the results or information developed in connec-*
11 *tion therewith shall be available without cost to the program*
12 *in the United States herein authorized."*

84TH CONGRESS
1ST SESSION

S. 516

[Report No. 370]

A BILL

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

By Mr. Case of South Dakota

JANUARY 18, 1955

Read twice and referred to the Committee on Interior and Insular Affairs

MAY 23 (legislative day, MAY 2), 1955

Reported with amendments

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

Issued
For actions of

May 27, 1955
May 26, 1955
84th-1st, No. 88

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HIGHLIGHTS: Senate passed bills to decrease interest to 3% on disaster loans, expand salt-water research, authorize Mexican fence, and authorize purchase of Aztec forest lands. Senate committee ordered reported mutual security bill. Sen. Humphrey urged re-evaluation of Ladejinsky case. House passed bill to authorize loans to small reclamation projects with amendment to give USDA responsibility in eastern States. House Rules Committee cleared bills to repeal REA formula and continue Mexican farm labor program. House received various supplemental appropriation estimates.

SENATE

1. FARM LOANS. Passed without amendment S. 1755, to decrease from 5% to 3% the interest rate on USDA disaster loans (pp. 6035-7).
2. MEXICAN FENCE. Passed without amendment S. 76, which authorizes appropriation of \$3,500,000 for completion of a Mexican boundary fence by the Boundary Commission. Sen. Anderson stated that "the Department of Agriculture has now become very much interested in the passage of this proposed legislation" because of animal disease in Mexico and that "the probability is that the Department of Agriculture will assume responsibility" for the project. (p. 6054.)
3. SALT-WATER RESEARCH. Passed without amendment H. R. 2126, to continue the Interior Department program of research on making fresh water from salt water through June 30, 1963; to increase the appropriation authorization from \$2,000,000 to \$6,000,000; to increase the limitation on departmental expenses from \$500,000 to \$1,500,000; and to permit \$500,000 to be expended for research and development in Federal laboratories(pp. 6053-4).
4. FORESTRY. Passed as reported S. 55, to authorize purchase of 98,000 acres of Aztec Land and Cattle Co. lands, in Ariz., which would be administered as national forest lands. These lands have been so administered in the past, but

through court action it was determined that they belonged to the Aztec Co. The bill provides that the National Forest Reservation Commission set the amount to be paid, not to exceed \$7,409,263. (pp. 6055-63.)

Passed as reported S. 1464, to authorize the Interior Department to acquire rights-of-way and existing connecting roads adjacent to public lands to provide timber access roads to public lands under Interior's jurisdiction (pp. 6049-50).

5. FOREIGN AID. The Foreign Relations Committee, by a 13-2 vote, ordered reported the mutual security bill, with authorization of \$3.408 billion (p. D473).

6. PERSONNEL. Sen. Humphrey commended creation of a permanent security review committee in USDA, stated that such a committee should have been established earlier, requested a re-evaluation of the Ladejinsky case by the committee, and inserted a Washington Evening Star article on this matter (pp. 6067-8).

The Post Office and Civil Service Committee reported with amendments S. 2061, a new postal pay bill (S. Rept. 382)(p. 6027).

7. STATE, JUSTICE, JUDICIARY APPROPRIATION BILL, 1956. The Appropriations Committee reported with amendments this bill, H. R. 5502 (S. Rept. 378)(p. 6027). The bill was made the unfinished business of the Senate (p. 6055).

8. RECLAMATION. Passed as reported S. 180, to authorize the Washita River Basin project, Okla. (pp. 6038-9).

Passed as reported H. R. 103, to provide for construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies (p. 6049).

Sen. Neuberger spoke in favor of the Hells Canyon Dam proposal and mentioned its rural-electrification value (pp. 6029-30).

9. LEGISLATIVE PROGRAM, as announced by Sen. Johnson: Today, no legislative business Tues., State-Justice appropriation bill and probably the mutual security bill; "early consideration" of the new postal pay bill; and probably next week, housing bill (pp. 6057-8).

HOUSE

10. RECLAMATION. Passed, 166 to 48, with amendments H. R. 5881, to provide for Federal cooperation in non-Federal projects and for participation by non-Federal agencies in Federal projects (pp. 6082-6108). Agreed, 85 to 23, to an amendment by Rep. Jones, Ala., authorizing the Secretary of Agriculture to administer the proposed program in the eastern States (pp. 6103-5). Also agreed to an amendment by Rep. Aspinall to provide for submission of projects to the entire Congress instead of the Interior and Insular Affairs Committees (pp. 6105-6). Rejected, 62 to 229, a motion by Rep. Hoeven to recommit the bill to limit the scope of the bill to the 17 western reclamation States (p. 6107). Previously rejected, 27 to 57, an amendment by Rep. Saylor having the same purpose as the Hoeven motion (pp. 6098-6102) and also an amendment by Rep. Saylor to extend the bill to Puerto Rico, Virgin Islands, Guam, and American Samoa (p. 6103). Rejected, 33-54, a Saylor amendment (to the Jones amendment) to include Texas as one of the western reclamation States (p. 6105).

11. FARM LABOR; ELECTRIFICATION. The House Rules Committee reported resolutions for the consideration of H. R. 3822, to provide for continuation of the Mexican farm labor program, and H. R. 5376, to amend the REA funds-distribution formula (pp. 6082, 6078-9).

1955, will be retained in an active status despite any mandatory promotion provisions of the present act.

Mr. President, the foregoing summarizes the provisions of S. 1718, and I urge that the Senate favorably consider this legislation.

Mrs. SMITH of Maine. Mr. President, I urge that the Senate take favorable action on this measure.

The PRESIDING OFFICER. The question is on agreeing to the committee amendment.

The amendment was agreed to.

The bill was ordered to be engrossed for a third reading, read the third time, and passed.

RESEARCH IN THE DEVELOPMENT AND UTILIZATION OF SALINE WATERS

Mr. JOHNSON of Texas. Mr. President, I move that the Senate proceed to the consideration of Calendar No. 374, Senate bill 516, to amend the act relating to research in the development and utilization of saline waters.

The PRESIDING OFFICER. The question is on agreeing to the motion of the Senator from Texas.

The motion was agreed to; and the Senate proceeded to consider the bill (S. 516) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, which had been reported from the Committee on Interior and Insular Affairs with amendments.

Mr. JOHNSON of Texas. Mr. President, I call the bill to the attention of the Senator from New Mexico.

Mr. ANDERSON. Mr. President, I hope that at the proper time we may take up H. R. 2126, the corresponding House bill.

However, first, let me refer to the Senate bill. Senate bill 516 was introduced by the Senator from South Dakota [Mr. CASE]. The bill is designed to further the program involving the study of saline water which was begun several years ago. This time the committee voted to increase substantially the amount of money which would be authorized, because we seem to be coming somewhat closer to actually making it possible to develop potable water from sea water. If this can be done, it will solve some of the great problems we now confront in connection with the rights to irrigation water on streams, for example. It would be extremely helpful to the State of the able junior Senator from California [Mr. KUCHEL], where growing communities need constantly increasing supplies of water.

Only a few minutes ago the Senate passed a bill under which certain communities in Oklahoma will pay about 30 cents for a thousand gallons of water. As the result of the work which is being done, the cost of producing potable water from saline water has been brought down to a somewhat comparable figure. I do not say that it has reached that point yet, but it is somewhat comparable. Therefore, we felt that a great deal of good could be accomplished if this bill, providing larger sums, could be passed.

Mr. CASE of South Dakota. Mr. President—

Mr. ANDERSON. Let me add one further statement.

We also made provision for the expansion of the amount of money that can be used in Federal research, because, as chairman of the Joint Committee on Atomic Energy, I felt obligated to call to the attention of the Committee on Interior and Insular Affairs the fact that there was a similarity between certain research work now going on in connection with atomic energy and the work involved in this program. I thought the atomic research had a bearing on the bill of the able Senator from South Dakota. We therefore have suggested an increased amount, because I think it can be advantageously spent.

I am very happy now to yield to the author of the bill, who has done fine work in this field.

Mr. CASE of South Dakota. Mr. President, the distinguished Senator from New Mexico has been most helpful. I should say that he was the author of one of the three bills which were considered by the Congress in initiating the original legislation on this subject. He has had a keen appreciation of the purposes of this type of legislation throughout its history. He made a distinct contribution in the committee hearings a few days ago when he brought to the attention of the committee the fact that similar problems concerning the recovery of water were involved in research being conducted by the Atomic Energy Commission, or under its auspices.

The original measure was passed a couple of years ago, and during the time the program has been in operation significant results have been obtained. It was my privilege to go to Boston, Mass., last summer immediately following adjournment of the Congress to see some of the experiments which were being carried on. Several Members of the House were there at the same time. We were all greatly encouraged. I believe that the progress which has been made in reducing the costs of the various processes which are under investigation is of great significance.

I may add that I have been surprised at the number of projects or approaches to this problem which have been uncovered. The imagination of the scientist and that of the manufacturer have been stimulated by the program. Research workers in various institutions and in private industry are going forward with various proposals. It is not necessary at this time to take the time of the Senate to recount them. Some reference to them will be found in the report of the committee. Members who are interested in the problem of the recovery of potable and usable water from brackish or saline waters are urged to read the testimony which was presented at the time of the hearings.

The House has passed a similar bill. At the proper stage I hope the Senator from New Mexico will make the motion—or I shall be happy to make it—to discharge the Committee on Interior and Insular Affairs from the further consideration of House bill 2126, so that it may be considered by the Senate and we may move to strike out all after the enacting clause and substitute the text

of Senate bill 516, as reported from the committee, so that the bill may go to conference with the text of both bills before the conferees.

Mr. ANDERSON. Mr. President, I am happy to follow the suggestion made by the Senator from South Dakota.

Mr. CASE of South Dakota. Have the committee amendments been agreed to?

Mr. ANDERSON. I am told that I should proceed in this fashion.

The PRESIDING OFFICER. Without objection, the Committee on Interior and Insular Affairs will be discharged from further consideration of House bill 2126.

The bill will be stated by title for the information of the Senate.

The LEGISLATIVE CLERK. A bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters.

The PRESIDING OFFICER. Is there objection to the present consideration of the House bill?

There being no objection, the Senate proceeded to consider the bill.

Mr. ANDERSON. Mr. President, I move to strike out all after the enacting clause, and to insert in lieu thereof the language of Senate bill 516, as reported from the Committee on Interior and Insular Affairs.

The PRESIDING OFFICER. The question is on agreeing to the motion of the Senator from New Mexico.

The motion was agreed to.

The amendment was ordered to be engrossed and the bill to be read a third time.

The bill (H. R. 2126) was read the third time and passed, as follows:

Be it enacted, etc., That the act of July 3, 1952 (66 Stat. 328; 42 U. S. C., secs. 1951 ff.), is hereby amended as follows:

(1) By modifying subsection (a) of section 2 of said act so as to read: "by means of research grants and contracts as set forth in subsection (d) of this section and by use of the facilities of existing Federal scientific laboratories within the monetary limits set forth in section 8 of this act, to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation."

(2) by modifying section 3 of said act to add the following: "Similarly, the fullest cooperation by and with the Atomic Energy Commission and the Civil Defense Administration in research and in determining the future needs of the Nation with respect to potable water and ways and means to provide same shall be carried out in the interest of achieving the objectives of the program."

(3) By modifying section 8 of said act so as to read: "There are authorized to be appropriated such sums, but not more than \$10 million in all, as may be required (a) to carry out the provisions of this act during the fiscal years 1953 to 1963, inclusive, (b) to finance for not more than 2 years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this act, and (c) during the same additional period plus 1 more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this act. Departmental expenses for direction of the program authorized by this act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed \$1,500,000,

and not less than \$2,500,000 shall be expended for research and development in Federal or educational institution (State or private) laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable: *Provided*, That not to exceed 10 percent of the funds available in any one year for research and development may be expended in cooperation with public or private agencies in foreign countries in the development of processes useful to the program in the United States: *And provided further*, That contracts or agreements made in pursuance of this proviso shall provide that the results or information developed in connection therewith shall be available without cost to the program in the United States herein authorized."

Mr. ANDERSON. Mr. President, I ask unanimous consent that Senate bill 516 be indefinitely postponed.

The PRESIDING OFFICER. Without objection, Senate bill 516 is indefinitely postponed.

WESTERN LAND BOUNDARY FENCE PROJECT

Mr. JOHNSON of Texas. Mr. President, I move that the Senate proceed to the consideration of Calendar No. 377, Senate bill 76.

The PRESIDING OFFICER. The bill will be stated by title for the information of the Senate.

The LEGISLATIVE CLERK. A bill (S. 76) authorizing appropriations for the construction, operation, and maintenance of the western land boundary fence project, and for other purposes.

The PRESIDING OFFICER. The question is on agreeing to the motion of the Senator from Texas.

The motion was agreed to, and the Senate proceeded to consider the bill.

The PRESIDING OFFICER. The bill is open to amendment. If there be no amendment to be proposed, the question is on the engrossment and third reading of the bill.

Mr. KUCHEL. Mr. President, I wonder if we may have a brief explanation of the bill.

Mr. ANDERSON. Mr. President, this bill was reported by the distinguished junior Senator from Arizona [Mr. GOLDWATER]. The Senate passed a similar bill in the 83d Congress. The bill provides for the western portion of the boundary fence. It starts at El Paso and runs through to the California border.

For a long time this was proposed as a means of controlling immigration into the United States. It was not exactly necessary for that purpose at the time—not solely, at least. Recently there have been outbreaks of foot-and-mouth disease, which cannot be controlled by merely controlling the livestock, cows, and so forth, which may be grazing along the Mexican border. Ticks can be carried across the border by wild animals, such as deer and various other animals. Therefore the Department of Agriculture has now become very much interested in the passage of this proposed legislation, since it would permit not only control of domestic livestock, but control of wild animals crossing the border. Therefore the Senator from Arizona, the Senator from California

[Mr. KUCHEL] and I have joined with others in suggesting again that the bill should be passed, and that an opportunity be afforded for the completion of this fence. The probability is that the Department of Agriculture will assume responsibility for it this time.

The PRESIDING OFFICER. The bill is open to amendment. If there be no amendment to be proposed, the question is on the engrossment and third reading of the bill.

The bill was ordered to be engrossed for a third reading, read the third time, and passed, as follows:

Be it enacted, etc., That there is authorized to be appropriated to the United States section, International Boundary and Water Commission, United States and Mexico, such sums as may be necessary for the construction, operation, and maintenance of the western land boundary fence project, as said project is presently planned or as the plans therefor may be amended from time to time.

SEC. 2. The said sums may be appropriated specifically for said project, or may be included with the appropriation for all construction projects of said United States section. The expenditures and appropriations herein authorized shall not be construed as placing a limitation on funds which may be hereafter appropriated for the operation and maintenance of said project. The United States Commissioner, International Boundary and Water Commission, United States and Mexico, notwithstanding the provisions of section 3679 of the Revised Statutes (31 U. S. C. 665), sections 3732 and 3733 of the Revised Statutes (41 U. S. C. 11 and 12), or any other law, may enter into contracts beyond the amount actually appropriated for so much of the work on said project as the physical and orderly sequence of construction or considerations of expediting said work make necessary or desirable, such contracts to be subject to and dependent upon future appropriations by Congress: *Provided*, That the total construction cost of said project shall not exceed \$3,500,000.

SEC. 3. Notwithstanding any contrary provisions of appropriation or other acts applicable to said project, the United States section is authorized to acquire by purchase, exercise of the power of eminent domain, or by donation any real or personal property which may be necessary for such project, as determined by the United States Commissioner, including rights-of-way not exceeding 60 feet in width, as may be necessary for such boundary fence and roads parallel thereto required for the patrol and maintenance thereof.

SEC. 4. Notwithstanding any contrary provisions of law, any executive department, independent establishment, or other agency of the United States is authorized to transfer to the United States section, without payment or reimbursement therefor, (a) any equipment, supplies, or materials which any of these agencies may have and which may be needed for the construction, repair, operation, or maintenance of such boundary fence project by the United States section; and (b) any existing fences, or portions thereof on or along the United States-Mexican boundary, which may be under the jurisdiction of such other Federal agency. The United States section is hereby authorized to expend, out of funds made available for boundary-fence construction, any sums of money which may be necessary for the reconstruction, repair, and operation and maintenance of boundary fences so transferred.

SEC. 5. The said United States Commissioner, in his discretion, is authorized to employ personnel for the survey, inspection, construction, and supervision of construction of such fence project without regard to

personnel ceilings otherwise imposed, and without regard to the civil-service laws or regulations requiring the employment of American citizens: *Provided*, That such employment shall not be for a period longer than that required for the completion of construction of such fence project, nor in any event for a period in excess of 3 years from the effective date of this act.

SEC. 6. Said fence project may be constructed by contract or by force account, or partly by contract and partly by force account, in the discretion of the said United States Commissioner; and in either event the provisions of title 41, United States Code, section 5, and other laws and regulations relating to advertising for proposals for purchases and contracts for supplies or services for departments of the Government and laws and regulations placing limitations upon the purchase of passenger-carrying or other motor-propelled vehicles shall be inapplicable to purchases and contracts for equipment and supplies or services for the survey, construction, or supervision of said fence project.

SEC. 7. The opinion of the Attorney General in favor of the validity of the title to any tract of land or easement therein to be acquired for right-of-way for said fence project shall not be required as a condition precedent to construction thereon when, in the opinion of the said United States Commissioner, such requirement would unduly delay the construction program and the interests of the United States are not jeopardized by the waiver of such requirement: *Provided*, That proceedings for the acquisition of such tracts or easements therein by purchase, exercise of the power of eminent domain, or condemnation have been commenced, and the consent of the record or apparent owner or owners of any such tract has been secured for the immediate occupancy thereof, or appropriate orders have been entered therefor in eminent domain proceedings: *Provided further*, That the United States Commissioner shall proceed, as expeditiously as may be possible, to secure title to such tracts or easements therein in the manner and to the extent required for the approval of the Attorney General in accordance with existing law: *Provided further*, That where portions of such fence are to be built within the right-of-way lines of existing State, county, or other public roads or highways, the United States Commissioner is authorized to accept, and the Attorney General is authorized to approve, rights-of-way, easements, or licenses from any such State, county, or other public agency having jurisdiction thereover, subject to such conditions and limitations as may be required by State or municipal law or regulation, including, but not limited to, conditions requiring the removal of said fence, or portions thereof, to points outside of the right-of-way lines as may not be objectionable to the State, county, or other public agency concerned, where considerations of widening said roads or highways, or other considerations of public necessity, make such removal necessary, and when, in the opinion of the United States Commissioner, the interests of the United States will not thereby be unduly jeopardized. The opinion of the attorney general of the State wherein such rights-of-way, easements, or licenses are granted, if such opinion be obtained, shall be conclusive as to the right or authority of the State, county, or other public agency concerned, and of the officials thereof, to grant any such right-of-way, easement, or license.

PRESERVATION OF HISTORIC PROPERTIES, OBJECTS, AND BUILDINGS, BOSTON, MASS.

Mr. JOHNSON of Texas. Mr. President, I move that the Senate proceed to

3. AIR POLLUTION. Passed as reported S. 928, to amend the Water Pollution Control Act to provide for the control of air pollution (pp. 6181-3). The bill had previously been reported with amendments during the recess of the Senate on May 27 (S. Rept. 389) (p. 6155).
 4. BUILDINGS. The Public Works Committee reported with amendments S. 1290, to provide for the construction of certain Government buildings in D. C. (S. Rept. 402) (p. 6158).
 5. WEATHER. The Interstate and Foreign Commerce Committee was discharged from consideration of S. 1932, making an appropriation for the operation of an emergency hurricane warning system by the Weather Bureau, and the bill was referred to the Appropriations Committee (p. 6164).
 6. ELECTRIFICATION. Sen. Neuberger criticized attacks by the State Council of Chambers of Commerce on the proposed Hells Canyon Dam project and inserted various resolutions favoring this project (pp. 6168-9).
 7. STATE, JUSTICE, JUDICIARY APPROPRIATION BILL, 1956. Passed as reported this bill, H. R. 5502 (pp. 6176-81). Agreed to committee amendments, en bloc, which include the following: That the position of Budget Officer of the State Department shall be in GS-18 so long as held by the present incumbent; that the compensation of the Administrative Assistant Attorney General shall be \$17,500 per annum so long as held by the present incumbent; that the compensation of the Director of the Bureau of Prisons shall be \$17,500 per annum so long as held by the present incumbent; and to change the reference to Mexican boundary "fence" to "demarcation" (pp. 6177-8).
This bill includes \$1,626,482 for FAO, \$206,914 for the Inter-American Institute of Agricultural Sciences, \$13,720 for the International Sugar Council, and \$26,264 for the International Wheat Council.
 8. CONSERVATION. Sen. Watkins stated that considerable interest has been expressed in his bill S. 1832, to establish a National Youth Rehabilitation Corps, and inserted several newspaper articles favoring this proposed program (pp. 6173-5).
 9. REFUGEE RELIEF. Sens. Humphrey, Sparkman, and Purtell discussed the President's proposed amendment to the Refugee Relief Act (pp. 6217-9).
 10. POSTAL PAY. Agreed to consider today S. 2061, the postal pay bill, limiting to 1 hour, equally divided, debate on any amendment; agreed that no amendment not germane to the bill shall be received and that debate on passage of the bill will be limited to 1 hour (p. 6204).
 11. STATEHOOD. Received an Hawaii Legislature resolution urging immediate statehood for Hawaii (p. 6157).
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- HOUSE
12. SALT-WATER RESEARCH. House conferees were appointed on H. R. 2126, which would amend and extend the saline water research program (p. 6223). Senate conferees have not yet been appointed.

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

Issued June 1, 1955
For actions of May 31, 1955
84th-1st, No. 90

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HIGHLIGHTS: Senate passed State-Justice appropriation bill, debated mutual security bill. Sen. Humphrey introduced and discussed bill to provide system of price reporting for basic forest products. Senate passed air pollution control bill. Both Houses received Hoover Commission report on research and development.

SENATE

1. FOREIGN AID. Began debate on S. 2090, the mutual security bill (pp. 6166-8, 6189, 6195-6201, 6204). This bill authorizes appropriation of \$3,408 million to continue for another year the various programs of foreign military, economic, and technical assistance, which comprise the "mutual security program." In addition, the bill authorizes unexpended balances of prior appropriations to be continued available except that those in excess of \$200 million which are still unobligated or unreserved as of June 30, 1955, are not authorized to be carried over. The bill also amends the Mutual Security Act of 1954 in several respects, including the following: Funds earmarked for surplus agricultural commodities are increased from \$350 million for fiscal year 1955 to \$600 million for the 2-year period 1955-6. \$13 million is earmarked for ocean freight on surplus agricultural commodities. Conditions applying to the use of funds for offshore procurement are repealed. The specific requirement that at least 30% of development assistance be in the form of loans is repealed. Authority is granted to make contracts of up to 3 years for furnishing development assistance. Authority is granted for foreign currencies received in payment for sales of commodities or services to be used for the purposes for which the funds providing the commodities or services were appropriated. Ocean transportation between foreign countries of goods procured with foreign currencies is exempt from the requirement that 50% be carried in American ships.
2. RESEARCH; REORGANIZATION. Both Houses received from the Commission on Organization of the Executive Branch of the Government a report on research and development in the Government (H. Doc. 174); to Senate Armed Services Committee and House Government Operations Committee (pp. 6156-6227).

House of Representatives

TUESDAY, MAY 31, 1955

The House met at 12 o'clock noon.

The Chaplain, Rev. Bernard Braskamp, D. D., offered the following prayer:

Most merciful and gracious God, grant that in these perilous days with their ever-shifting human scenes, we may find our peace and security in Thee and those laws and principles which we know are authentic and abiding.

May we give ourselves gladly and unreservedly to the guidance of Thy spirit, knowing that Thy ways are the ways of pleasantness and peace.

Inspire us with courage to believe that the forces of evil, however gigantic and terrible, are not too great for Thy divine power to defeat and destroy.

Grant that we may place all our confidence in the Christ, that friend who will never fail or forsake us, but who is the friend sticking closer than a brother.

Hear us in His name, who is ever the same, yesterday, today, and forever. Amen.

THE JOURNAL

The Journal of the proceedings of Friday, May 27, 1955, was read and approved.

RESEARCH IN DEVELOPMENT AND UTILIZATION OF SALINE WATERS

Mr. ENGLE. Mr. Speaker, I ask unanimous consent to take from the Speaker's table the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, with Senate amendments thereto, disagree to the Senate amendments, and ask for a conference with the Senate.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the request of the gentleman from California? [After a pause.] The Chair hears none and appoints the following conferees: Messrs. ENGLE, ASPINALL, O'BRIEN of New York, MILLER of Nebraska, and SAYLOR.

CONSTRUCTION OF DISTRIBUTION SYSTEMS ON AUTHORIZED FEDERAL RECLAMATION PROJECTS BY IRRIGATION DISTRICTS

Mr. ENGLE. Mr. Speaker, I ask unanimous consent to take from the Speaker's table the bill (H. R. 103) to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies, with Senate amendments thereto, disagree to the Senate amendments, and ask for a conference with the Senate.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the request of the gentleman from California? [After a pause.] The Chair hears none and appoints the following conferees: Messrs. ENGLE, ASPINALL, O'BRIEN of New York, MILLER of Nebraska, and SAYLOR.

LIBERALIZING SOCIAL-SECURITY LAW

(Mr. KARSTEN asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. KARSTEN. Mr. Speaker, I have today introduced legislation which is designed to liberalize our social-security law in two areas in which present law is totally inadequate in protecting our American workers and their families. The amendments which would be accomplished by the enactment of my bill are necessary and long-overdue improvements in our social-security law. By acting favorably on my bill, Congress will have passed legislation to make the social-security law more equitable and to eliminate many hardship situations that exist in present law.

One of the amendments proposed in my bill would for the first time make disability benefits available to a covered worker and his dependents at any time that the worker sustains a total extended disability. Under present law, a worker who becomes disabled prior to attaining age 65 is required to wait for his benefits until he reaches retirement age. This inequity in the old-age and survivors insurance program has resulted in the loss of self-respect and financial security by workers who suffer the misfortune of becoming seriously injured. This condition creates not only a hardship for the worker but also imposes intolerable economic and social consequences on the worker's family.

We have made tremendous strides in the last two decades in developing facilities for the rehabilitation of our disabled citizens. I am confident that the enactment of my bill to provide old-age and survivors insurance benefits to disabled workers will contribute materially to further progress in worker rehabilitation. It is my view that by making disability benefits available under the old-age and survivors insurance program, we will succeed in shortening the period of disability rather than prolonging it. I base this opinion on the fact that through disability benefits we will have provided the disabled worker with a minimum floor of protection against poverty and want. We will have kept him from becoming a public charge and will have enabled him to provide for his fam-

ily. It cannot be disputed that a worker who becomes totally injured is as much in need of social-security benefits as is a person who is unable to work for reasons of age.

It is estimated that approximately 2 million American citizens will benefit from the enactment of the provision of my bill which would make disability benefits available. These people would receive in benefits approximately \$1.5 billion per year.

The second long-overdue improvement in our social-security law which my bill would accomplish is to make old-age and survivors insurance benefits available to women at age 62, instead of requiring them to wait until they have become 65 years of age. This amendment would make a woman who is 2 or 3 years younger than her husband eligible for benefits at the same time that he becomes eligible for old-age and survivors insurance benefits upon attaining age 65. It also would mean that widows will be able to draw benefits at a younger age than is permitted at the present time. It is estimated that in the first full year of operation this amendment will provide \$400 million in benefits to approximately 700,000 women. Eventually, the amendment will aid over 1 million women annually with annual benefit payments equalling approximately \$1 billion.

As a member of the Committee on Ways and Means, I have introduced this important legislation with a view to asking for immediate study of the proposals by the Department of Health, Education, and Welfare. It is also my purpose to ask the earliest possible consideration of these amendments to the social-security law by the Congress of the United States. The costs of liberalizing the old-age and survivors insurance program as provided in my bill would be far outweighed by the benefit that will be derived by the American public.

UPPER COLORADO RIVER STORAGE PROJECT NEEDS FACTS, NOT EMOTION

(Mr. HOSMER asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. HOSMER. Mr. Speaker, the discussion of the proposed upper Colorado River storage project which has so far occurred from the forum has, in general, created much more heat than light on this very important subject.

It is a vital subject, both from the standpoint of the tremendous proposed expenditures of Federal taxpayers' funds and its consequences with respect to the national debt, and from the standpoint

of the continuing and future welfare of the regions of our country dependent upon the waters of the Colorado River for their present and future welfare.

Water is the lifeblood of the West. The continued availability to southern California of her apportioned share of the Colorado's waters is a prime requisite of her ability to support the 6 million souls she counts as her population.

Her rights to the Colorado's waters were acquired by contract, by appropriation and by the Colorado River compact. Southern California, the State of California, and the Representatives in this House from southern California, all of whom have joined in unanimous opposition to the proposed Colorado River storage project as now planned are not seeking one additional drop of the river's waters. We seek only to protect what rights we now have from being trampled by the manner in which the storage project is presently planned and to be operated.

Inasmuch as one of my colleagues, the gentleman from Utah [Mr. Dawson], in a speech from this well last week used the words and phrases "distortion," "misinformation," "false assumption," "utterly fantastic conclusions," "misrepresentation," "misleading," "high-pressure campaign," "wrongness," and "unfair attacks" to characterize the opposition expressed to the project by my colleague from southern California [Mr. HOLIFIELD], as a southern Californian, I wish to deny the implication of such language.

I wish also to reiterate to this House that no one in southern California objects to the full use by the upper-basin States of the water to which they may be entitled under the Colorado River compact and otherwise if they choose to do so without trampling California's rights.

I do wish to make it clear that southern California's opposition can in no fair sense be characterized by the adjectives chosen by the gentleman from Utah. I reiterate—we only seek to protect what water is ours by compact, contract, and prior appropriation. We fairly and squarely observe the Colorado River compact and only insist that the upper basin States do so in whatever projects they may plan and operate in the upper basin. That insinuation should not be characterized as some of the upper-basin proponents have been doing. I ask the Members of this House only to disregard the heat, and observe the light of the discussion that may occur on this important issue.

THE LATE HONORABLE HAROLD M. STEPHENS

(Mr. McCORMACK asked and was given permission to address the House for 1 minute and to revise and extend his remarks and include an editorial appearing in the Washington Post of May 30.)

Mr. McCORMACK. Mr. Speaker, the death of Chief Judge Harold M. Stephens, of the United States court of appeals, takes from our ranks a great American, an outstanding jurist, and a

fine gentleman. For Judge Stephens was all of these, and more. The fine life he had was an example for all others to follow.

It was my pleasure to meet Judge Stephens some years ago and from that meeting, there developed a friendship between us. I shall miss him very much.

Judge Stephens was one of the ablest and most respected members of the Federal judiciary.

His profound knowledge of law and his devotion to duty has added luster to the judiciary of the United States. He was also a builder. When he saw weaknesses in our judicial system, he gave of his ability and time in correcting them by administrative action, and when necessary by legislative action.

Chief Judge Stephens recognized the importance of an independent judiciary—as independent "as the lot of man will permit." He recognized that for our judges to be as freely independent as is humanly possible, that economic considerations played an important part, particularly to get the best qualified lawyers to accept judicial appointment.

I can testify to the fact that no person outside of Congress played a more important part in the passage of the recent bill increasing the salary of Federal judges, as well as the one passed by Congress several years ago, than did Judge Stephens. He did not do this because of personal interest; he did it because he felt the two increases of salary in recent years, long delayed, was an act of justice to his colleagues on the Federal bench. The judges of our Federal courts will always remember Judge Stephens. He has left his indelible imprint on the pages of the judicial history of our country.

I extend to Mrs. Stephens my profound sympathy in her great loss and sorrow.

But I am sure in her sorrow that Mrs. Stephens will derive great consolation in the beautiful and constructive life her husband led, and the widespread deep respect entertained for her distinguished husband.

[From the Washington Post and Times Herald of May 30, 1955]

HAROLD M. STEPHENS

As chief judge of the United States court of appeals, Harold M. Stephens made a profound impression upon the American bench and bar. He presided over the court with dignity tempered by an innate humility, with diligence that amounted to a passion, and with an acute sense of judicial responsibility. In the literal meaning of the words, he was a judge's judge.

In recognition of his brilliance as a student of the law and as a prosecutor and practicing attorney, he was made a judge of the Third Judicial Court in Salt Lake City at the age of 31. At the end of his 4-year term he went back to practice, took graduate courses at the University of California and Harvard Law School, and came to Washington as Assistant Attorney General in 1933. Even as a Government lawyer arguing cases in the Supreme Court in the turbulent days of the New Deal, his judicial temperament and his unswerving loyalty to the concept of a fair trial were much in evidence. While trying to save the Petroleum Code in the "hot oil" cases, he candidly admitted that that code had been enforced for a year without a penal section.

Judge Stephens' rank acknowledgment that men were being indicted and sent to

jail for violating executive orders that were difficult to find in print led to the creation of the Federal Register, in which all official regulations are now published. Both on and off the bench he was a stickler for orderly and proper procedures. An expert on judicial rules, he devoted an enormous part of his time as chief judge to administrative and procedural problems. Last year he personally handled 1,776 of the 2,500 motions and petitions filed in the court of appeals and presided over 745 three-judge hearings on motions. His colleagues give him credit for establishing a motions-calendar system that has eliminated the previous chaos in this sphere and brought the hearing of motions up to date.

As a member of the United States Judicial Conference, Judge Stephens exerted a powerful influence toward improvement of the whole judicial system. He worked for the establishment of the administrative office of the United States courts and was the spark-plug behind two salary increases for judges. The District's new courthouse will long stand as a monument to the persistence and drive of Judge Stephens, former Chief Judge D. Lawrence Groner, Chief Judge Laws of the District court, and a few others.

In the decision of cases Judge Stephens was a perfectionist. He didn't like to make up his mind until he had read and pondered everything bearing on a case. It was not unusual for him to cite 25 cases pertinent to a point at issue. When his laborious homework had been done, he brought to the court a rare quality of legal judgment. While this newspaper sometimes challenged his conclusions, as in the Thompson's Restaurant case, we always maintained great respect for his objectivity and his independent pursuit of the facts and the law. His talent for handling legal technicalities gave him a special expertise in patent law, and he wrote many opinions in this field.

Always alert to injustice, he had a passion for hearing everyone who knocked at the door of the court. Sometimes his leniency in favoring reargument of cases troubled his colleagues, but they respected his purpose of giving every man his day in court. In personal relations the "Judge," as he was so often called, seems to have the good will and affection of everyone. His passing leaves a gaping hole in the court of appeals but adds another chapter of great achievement to the history of the American judiciary.

Mr. KEATING. Mr. Speaker, will the gentleman yield?

Mr. McCORMACK. I yield.

Mr. KEATING. I should like to join, Mr. Speaker, in this tribute to Judge Stephens who served with indefatigability and great distinction as chief judge of the court of appeals here in the District. He was recognized as one of the leading jurists of the country. Combined in him to an unusual degree were those sterling qualities which mark an outstanding judge. He has left a wonderful record behind him which the lawyers and the judges of this country will long emulate.

To Mrs. Stephens, his constant companion and loving helpmate, we all extend our profound sympathy.

(Mr. KEATING asked and was given permission to revise and extend his remarks.)

THE COLORADO RIVER COMPACT

(Mr. MILLER of Nebraska asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

6. ELECTRIFICATION. Sen. Magnuson inserted his statement favoring the proposed Hells Canyon Dam (pp. 6481-4).
7. ADJOURNED until Mon., June 6 (p. 6484). Legislative program: Mon., appropriation bills; Tues., the housing bill and any other bills which may be reported and are on the calendar (p. 6481).

HOUSE

8. FORESTS. Rep. Bailey inserted a USDA release on the monetary loss due to forest fires and commended the Forest Service for improvements reducing this loss (p. 6338).
9. FLOOD CONTROL. Passed, with amendment, H. R. 192, providing for the construction of a multipurpose dam on the Rappahannock River (pp. 6338, 6341-7).
10. LOANS. Passed, without amendment, H. R. 5715, which was subsequently laid on the table when S. 654 was amended by the inclusion of the provisions of H. R. 5715 and passed. This bill would provide for additional direct loans for the purchase of farms by veterans under the VA Readjustment Loan Act (pp. 6347-58).
11. SALT-WATER RESEARCH. Rep. Roosevelt suggested that the conferees on the saline water research bill, H. R. 2126, should give consideration to cooperation with the Atomic Energy Commission and Civil Defense Administration in the final form of the bill (p. 6345).
12. POSTAL PAY. Post Office and Civil Service Committee reported with amendment S. 2061, which would increase the basic rates of compensation for postal employees (H. Rept. 728) (p. 6360).
13. LOBBYING. Pursuant to regulations of Lobbying Act, the quarterly report of lobbyists was included (pp. 6363-96).
14. ADJOURNED until Mon., June 6 (p. 6360). Legislative program: Rep. McCormack scheduled consideration of H. R. 5376, which would amend the Rural Electrification Act of 1936, on Mon.; S. 2061, the postal pay increase bill, on Tues.; and H. R. 5923, a bill on the Inter-American Highway, on Wed. Consent and private Calendars are to be read on Tues. (p. 6338).

BILLS INTRODUCED

15. CIVIL DEFENSE. H. R. 6619, by Rep. Broyhill, to provide for the creation of a civil defense agency having jurisdiction of civil defense for the Metropolitan Washington area; to Armed Services Committee (p. 6361).
16. RECLAMATION. H. R. 6620, by Rep. Budge, to authorize the Secretary of the Interior to construct, operate and maintain in the Upper Snake River Valley, Idaho and Wyoming, the Narrows Federal reclamation project and a reregulating reservoir below the Palisades Dam and Reservoir; to Interior and Insular Affairs Committee (p. 6361).
17. PROPERTY; ADMINISTRATIVE SERVICES. H. R. 6624, by Rep. Dawson, Ill., to "amend the Federal Property and Administrative Services Act of 1949, as amended;" to Government Operations Committee (p. 6361).

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

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HIGHLIGHTS: Senate passed mutual security bill. Rep. Bailey commended FS for national forest improvements.

SENATE

1. FOREIGN AID. Passed, 59 yeas to 18 nays, with amendments S. 2090, the mutual security bill (pp. 6421-81). Agreed to a Mundt amendment earmarking \$50 million (in addition to the amount provided in the committee bill) for exportation of surplus farm products (p. 6475), a Magnuson amendment providing that U. S. money shall be made available for marine insurance on certain commodities (pp. 6475-6), and an Ellender amendment that administration of the program should be on a cooperative basis with recipients, when able, extending assistance to underdeveloped countries (p. 6476). Rejected several amendments to reduce and restrict the authorization.
2. APPROPRIATIONS. Additional conferees were appointed on H. R. 5502, the State, Justice, and Judiciary appropriation bill, 1956 (p. 6450).
The Appropriations subcommittee ordered reported to the full committee with amendments H. R. 5240, the independent offices appropriation bill, 1956 (p. 1498).
3. PERSONNEL. The Government Operations subcommittee ordered reported with amendments S. J. Res. 21, to establish a Commission on Government Security (p. 1498).
4. SUGAR. Sen. Carlson inserted a Garden City, Kans., Chamber of Commerce resolution urging an increase in quotas for the domestic sugar industry (pp. 6397-8).
5. EXPENDITURES; PERSONNEL. Sen. Byrd submitted an additional report of the Joint Committee on Reduction of Nonessential Federal Expenditures on Federal employment and pay for April 1955 (pp. 6398-6401).

Mr. BECKER. The answer given was that a firm estimate for the lower elevation was \$46 million. That is to be found at page 19, at the top of the page.

Mr. JONES of Alabama. Has the gentleman taken into account what preceded the discussion before the interrogation to which he has referred?

Mr. BECKER. Yes, I have.

Mr. JONES of Alabama. Of course, if there is an increase of any amount that is required, that request would come before the committee of which the gentleman is a member. That would be the proper forum in which to discuss the question of increased cost, because these projects have been authorized for a number of years and all of them are going to have to be reexamined in the light of increased cost. Certainly we will have ample opportunity to examine all witnesses with respect to the cost of this project and other similar projects.

Mr. BECKER. Will the gentleman show me any testimony in any part of this hearing that indicates any other purpose for this dam than power?

Mr. JONES of Alabama. Of course, the report is full of it.

Mr. BECKER. Where?

Mr. JONES of Alabama. There are 69 pages of the report.

Mr. BECKER. Is the gentleman talking about the report submitted 6 years ago or the recent hearings, 2 weeks ago, before the committee?

Mr. JONES of Alabama. It is the same river, the same dam, the same authorization. The only thing the pending bill does is increase the level of the original figure of 240 feet.

Mr. BECKER. I am not going back to the hearings of 8 or 9 years ago. I am referring to the hearings that we had here recently. That was just 2 weeks ago. They have not even been printed yet. The testimony all through those hearings is to the effect that 90 percent of the purpose of building this dam is power and that less than 8 percent is for flood control. If anybody looks through the record, they will see that there has been very little in the way of flood damage in the vicinity of Fredericksburg, in Culpeper County, in the past 50 years. It has amounted almost to nothing, according to the testimony. I can see no need, when there is sufficient power in that area today, for this dam. There is no shortage of power that calls for spending a minimum of \$48 million, and it may run up as high as \$75 million before new estimates come in.

Mr. JONES of Alabama. Mr. Chairman, will the gentleman yield further?

Mr. BECKER. I yield.

Mr. JONES of Alabama. In order to accomplish what the gentleman from New York is evidently trying to do here, it would be necessary to introduce a resolution de-authorizing the project.

Mr. BECKER. May I say to the gentleman that this would be a means of de-authorizing it, by killing it now.

Mr. JONES of Alabama. You do not de-authorize it and you do not kill it. If the gentleman's views were to prevail it would mean that the Federal Government would have less return from its investment. You would get a poorer

type of construction, a poorer type of project, which would mean less income for the Federal Government. So to be economical, the thing to do is to proceed with this bill.

Mr. BECKER. I do not think it would be economical at all. I disagree on the question of economy in this respect because there has been over \$145,000, I believe from the record I saw here, spent already on surveys in this area. When we authorize this additional survey now at the 240-foot level there will certainly be an additional expenditure, which will be automatic, and we will spend more money. The object now of trying to defeat this bill is to discontinue spending any more money for any additional surveys, because all the testimony has proved the lack of need for this project in that area for power or flood control or for any other reason. Anyone can read this testimony when it goes into print and see how little need there is for this project. It is truly a power project that is not even needed on the basis of demand for electricity, that can be provided by other power interests in that area that are paying over \$19 million in taxes to the Government.

Mr. JONES of Alabama. Mr. Chairman, I yield 1 minute to the gentleman from California [Mr. ROOSEVELT].

Mr. ROOSEVELT. Mr. Chairman, I ask unanimous consent to proceed out of order and to revise and extend my remarks.

The CHAIRMAN. Is there objection to the request of the gentleman from California.

There was no objection.

Mr. ROOSEVELT. Mr. Chairman, H. R. 2126 and S. 516 to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, have been passed by the House and the Senate respectively and are now in conference, where the differences in the two bills will be reconciled.

I come before this body today to urge the House conferees to give favorable consideration to the language contained in paragraph 2 of the Senate bill, which states:

Similarly, the fullest cooperation by and with the Atomic Energy Commission and the Civil Defense Administration in research and in determining the future needs of the Nation with respect to potable water and ways and means to provide same shall be carried out in the interest of achieving the objectives of the program.

I believe that the adoption of this section will stimulate the production of atomic energy for peaceful use, for water is an indispensable element in such production. This section is also in line with a previous statement I made to the Los Angeles Department of Water and Power on May 13, 1955, wherein I asked that consideration be given to the invitation of the Atomic Energy Commission for the purchase and use of the energy developed by the experimental reactor being built in southern California by North American Aviation. I believe that the adoption of this section will stimulate closer cooperation between the Atomic Energy Commission and municipal water and power departments all

over the country, particularly in Los Angeles.

I would also like to strongly suggest to the conferees that they give favorable consideration to the language contained on page 2, line 24, of the Senate bill, wherein it is stated that "not less than \$2,500,000 shall be expended for research and development in Federal or educational institution—State or private—laboratories."

In line with this section, I would like to inform this body that the legislature of the State of California has appropriated funds for the University of California, for research into the development and utilization of saline waters. The additional funds provided in the Senate bill will stimulate research into this very important field in all areas of our country as well as in California, and will help us to find a practical means of increasing and preserving a natural water resource which is so vital to the future prosperity and development of many parts of our country.

Mr. JONES of Alabama. Mr. Chairman, I yield 5 minutes to the gentleman from Mississippi [Mr. SMITH], a member of the committee.

Mr. SMITH of Mississippi. Mr. Chairman, I desire to speak in regard to this bill primarily because an incorrect assumption has been given in the debate about the justification for the passage of this bill as presented to our committee.

A large number of constituents of my colleague, the gentleman from Virginia [Mr. SMITH], several hundred, appeared in behalf of the legislation. Primarily they testified in behalf of the legislation in order to give flood protection to the city of Fredericksburg and to give an additional water supply to that city.

Mr. BECKER. Mr. Chairman, will the gentleman yield?

Mr. SMITH of Mississippi. I yield to the gentleman from New York.

Mr. BECKER. The gentleman says that hundreds of people appeared at the hearing and testified in favor of this?

Mr. SMITH of Virginia. There appeared to be that many. I did not count them, I did not count noses, but there were so many that they were divided up, and half the people in favor of it could not get in the committee room in the morning.

Mr. BECKER. May I correct the gentleman?

Mr. SMITH of Mississippi. Let us get it straight, now.

Mr. BECKER. I think the gentleman's statement is so incorrect that it stands correction. I leave it to the gentlemen on the other side over there. Only 3 people testified in favor of this and there were 200 people there that were cut down so that only about 7 testified.

Mr. SMITH of Mississippi. The gentleman from Virginia, who represents all the people in that area, can best describe who was there, and I leave it to the House.

Mr. BECKER. I think that is an unwarranted challenge, and I resent it.

Mr. SMITH of Virginia. I do not want to get into the middle of a fuss about it,

but as a matter of fact a great many people were present at the hearings. The committee was very courteous and asked them to put up several people on either side to testify, and gave them the opportunity. I would say there were about an equal number on either side, but the great area there of Fredericksburg, Stafford County, and Spotsylvania County, were unanimously in favor of it. In the upper regions of the river, where some people were going to be flooded out, a good many people opposed it.

Mr. BECKER. Mr. Chairman, will the gentleman yield for one question?

Mr. SMITH of Mississippi. I do not have authority to settle this, but let the gentleman ask me the question.

Mr. BECKER. I cannot ask you the question because the gentleman from Virginia [Mr. SMITH] is the only one who is able to answer the question.

Mr. SMITH of Virginia. I will gladly answer any question I can, but I am sorry I do not have the floor.

Mr. BECKER. I asked the gentleman to yield so that I could ask the gentleman from Virginia a question.

Mr. SMITH of Mississippi. I yield to the gentleman from New York.

Mr. BECKER. What I would like to say is simply this—that amongst the people you mentioned, and I respect you to the highest degrees, sir, and I want you to know that—the only people who testified in behalf of this project was your good self, the gentleman from the REA, and one member of the Legislature of Virginia. That is all who spoke and nobody else at that hearing of the people from that area testified.

Mr. SMITH of Virginia. Let me say to the gentleman that there were a hundred people there, and they selected a member of the Virginia State Legislature, Mr. Goldman, to speak their piece for them, which was the orderly way to do it, and he spoke for the group.

Mr. SMITH of Mississippi. Mr. Chairman, the fight here is one of those old fights between the people below the dam and the people above the dam. Of course, the people above the dam who think that their land will be taken over are opposed to it, but this idea of nobody being in favor of it is completely incorrect, and the best evidence that it is incorrect is the fact that the gentleman who represents that district in the Congress is supporting this and actively fighting to get this legislation passed. The member of the State Legislature of Virginia, Mr. Francis B. Gouldman, who represents the city of Fredericksburg and the county of Spotsylvania, testified at length about the flood damage that has been visited upon the city of Fredericksburg. Anybody who cares to look at the testimony will find several pages of the testimony with reference to that. Other representatives of the area reported also about the need for an adequate water supply for the city of Fredericksburg, which they could secure by the construction of this dam. There is no question but that very strong evidence was presented in behalf of the dam not only by this gentleman who represented this area in the legislature, but the plant

manager of the Sylvania Division of the American Viscose Corp. of Fredericksburg, Va., testified in behalf of the legislation in regard to the need for water and in regard to the need for flood protection for this industry which is vital for the continued employment of the people in Fredericksburg and the surrounding area.

The CHAIRMAN. The time of the gentleman from Mississippi has expired.

Mr. BECKER. Mr. Chairman, I have no further requests for time.

Mr. JONES of Alabama. Mr. Chairman, we have no further requests for time.

The CHAIRMAN. There being no further requests for time, the Clerk will read.

The Clerk read as follows:

Be it enacted, etc., That Public Law 526 of the 79th Congress, section 10 of the Flood Control Act, July 24, 1946 (Rappahannock River) be amended by striking out the proviso which reads as follows: "Provided, That the power pool shall be maintained at an elevation not to exceed 220 feet."

With the following committee amendment:

Strike out all after the enacting clause and substitute in lieu thereof the following: "That section 10 of the Flood Control Act of July 24, 1946, Public Law 526, 79th Congress, under the title 'Rappahannock River Basin' is hereby amended by striking out '220,' and substituting in lieu thereof '240.'"

The CHAIRMAN. The question is on the committee amendment.

The question was taken; and on a division (demanded by Mr. BECKER) there were—ayes 48, noes 11.

Mr. BECKER. Mr. Chairman, I object to the vote on the ground that a quorum is not present, and make the point of order that a quorum is not present.

The CHAIRMAN. The Chair will count.

Mr. BECKER. Mr. Chairman, I withdraw the point of order.

The CHAIRMAN. The gentleman withdraws the point of order.

So the committee amendment was agreed to.

The CHAIRMAN. Under the rule, the Committee rises.

Accordingly the Committee rose; and Mr. McCORMACK having assumed the chair as Speaker pro tempore, Mr. BOLLING, Chairman of the Committee of the Whole House on the State of the Union, reported that that Committee had had under consideration the bill (H. R. 192) to amend Public Law 526 of the 79th Congress, section 10 of the Flood Control Act, July 24, 1946—Rappahannock River, and pursuant to House Resolution 261, he reported the bill back to the House with an amendment adopted in Committee of the Whole.

The SPEAKER pro tempore (Mr. McCORMACK). Under the rule, the previous question is ordered.

The question is on the amendment.

The amendment was agreed to.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

TO AMEND THE NATURAL GAS ACT

(Mr. KELLEY of Pennsylvania asked and was given permission to extend his remarks at this point in the Record.)

Mr. KELLEY of Pennsylvania. Mr. Speaker, the House Interstate and Foreign Commerce Committee is to be commended for yesterday's action in adopting the following provisions from my bill to amend the Natural Gas Act—H. R. 5034:

In the administration of this act, the Federal Power Commission shall consider among other things—

(1) the maintenance of productive capacity of the several domestic fuel industries sufficient to meet the current and long-range fuel needs of the Nation; and

(2) the sound principles of conservation in order to preserve the available reserves of natural gas for purposes which will afford maximum long-range benefits to the public, with due regard for the conservation policies and regulations of the producing States.

When the Natural Gas Act was enacted in 1938, the situation in the energy field was so far different than it is at the present time that there was no compelling reason to include conservation provisions in the law. Even as late as 1946, the first year of peace after World War II, the natural gas picture presented no cause for alarm. In 1946 discoveries of natural gas reserves were three times greater than total production. The life index of this fuel was set at 32½ years and it was assumed that we had nothing to worry about.

In 8 short years, however, conditions have changed considerably. In 1954 discoveries barely exceeded production, and the American Gas Association reported that the index had dropped to 22½ years. The situation is serious. We must take stock and find ways of conserving our natural gas resources. The decision of the Interstate and Foreign Commerce Committee is one important step toward achieving this objective.

While the Federal Power Commission has made token efforts to conserve natural gas supplies, it could hardly be expected to carry out such a policy on a wide scale because it has never received a congressional mandate to do so. The legislation which I trust will soon come to the floor will remedy this deficiency and enable the Commission to use conservation as a guiding light in determining the Nation's fuel policy.

Mr. Speaker, there is entirely too much waste of natural gas taking place in various areas of the country. President Truman's Materials Policy Commission warned in 1952 that natural gas should be used as economically as possible because it is a short-life fuel. Here is a question which that Commission asked in its report 3 years ago:

How can the Nation minimize inferior uses of gas for which more abundant energy resources, notably coal, would serve as well—and, in the long run, at lower real cost to the Nation—in order to maximize special advantage uses in which gas serves its highest economic function in the long run?

The report explained the distinction between special advantage and inferior uses. It stated that special advantage

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

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For actions of June 6, 1955
84th-1st, No.93

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HIGHLIGHTS: House received conference report on Interior appropriation bill, including FS items. House passed bill to modify REA funds formula. Ready for President. House committee reported forest mining bill. Senate passed Labor-HEW and independent offices appropriation bills.

SENATE

1. APPROPRIATIONS. Passed with amendments H. R. 5046, the Labor-HEW appropriation bill, 1956, which had been reported on June 3 during recess (S. Rept. 410). Senate conferees were appointed. (pp. 6486, 6495-508.)
Passed with amendments H. R. 5240, the independent offices appropriation bill, 1956, which had been reported on June 3 during recess (S. Rept. 411). Senate conferees were appointed. Agreed to committee amendments increasing the President's disaster relief fund from \$2,000,000 to \$5,000,000, increasing the National Science Foundation from \$12,250,000 to \$20,000,000, and authorizing additional supergrades in GAO. Agreed to an amendment by Sen. Holland to reduce from \$250,000,000 to \$216,000,000 the civil service retirement and disability fund. (pp. 6486, 6509-13.)
2. SALT-WATER RESEARCH. Senate conferees were appointed on H. R. 2126, to continue and expand the Interior Department research program on converting salt water to fresh water (p. 6507). House conferees have been appointed.
3. SMALL BUSINESS; DROUGHT RELIEF. Passed without amendment S. 2127, to extend the Small Business Administration for 2 years, to increase the loan limit from \$150,000 to \$250,000, and to enable SBA to make loans to distressed small businesses in drought areas (pp. 6516-19). The bill includes authority for additional supergrades in SBA.

4. FARM LOANS. The Labor and Public Welfare Committee reported without amendment H. R. 5106, to amend the Servicemen's Readjustment Act of 1944 so as to authorize loans for farm housing to be guaranteed or insured under the same terms and conditions as apply to residential housing (S. Rept. 464)(p. 6490).
Sen. Carlson inserted the recommendations of the Farm Credit Board of Wichita regarding S. 1286 and H. R. 5168, the farm credit bills (p. 6493).

5. LABOR STANDARDS. The "Daily Digest" states: "On Friday, June 3, the Labor sub-committee, in executive session, ordered favorably reported to the full committee certain proposals amending the Fair Labor Standards Act, including increasing the minimum hourly wage from 75 cents to \$1, effective January 1, 1956, and certain proposals relating to minimum wages in Puerto Rico and the Virgin Islands. The committee agreed to postpone, until a later date, consideration of coverage of additional workers under the Fair Labor Standards Act." (p.D509.)

6. ELECTRIFICATION; RECLAMATION. Sen. Neuberger was critical of the Supreme Court decision permitting the Portland General Electric Company to build certain dam sites. He suggested that the need for the Hells Canyon dam was evident and that other dam site considerations would imperil the fisheries industry of the Columbia River Basin (pp. 6524-8).

Sen. Morse inserted a newspaper article, letter to the editor, and resolution of the Oregon State Council of Carpenters in support of a high Hells Canyon Dam (pp. 6529-30).

7. LEGISLATIVE PROGRAM. Majority Leader Johnson scheduled consideration of S.2126, the housing bill, on Tuesday; H. R. 5695, to suspend copper import taxes, on Tuesday or Wednesday; the minimum wage bill on Tuesday or Wednesday (or as soon as reported); and the Interior appropriation bill when the House acts (p. 6488).

HOUSE

8. APPROPRIATIONS; FOREST SERVICE. Received the conference report (H. Rept. 731) on the Interior Department appropriation bill, 1956 (pp. 6539-40). Attached is a table on Forest Service items.

9. RURAL ELECTRIFICATION. Passed without amendment S. 153, to amend the Rural Electrification Act, 1936 (pp. 6544-7). The bill: Retains but modifies the State allotment formula by making 25% (instead of 50%) of the annual loan fund appropriations subject to State allotment on the basis of unelectrified farms during the first six months of the fiscal year. Thereafter the unexpended or unobligated funds would be merged with the remaining 75% of the annual loan funds which would be available without allotment, with not more than 25% of unallotted annual loan funds to be employed in any one State, or in all of the Territories. Loan funds which are not loaned or obligated may be carried over to the following years, under the amendment, but not more than 25% of such funds could be used in any one State or in all of the Territories. This bill will now be sent to the President

10. FORESTRY; MINING. The Committee on Interior and Insular Affairs reported with amendment H. R. 5891, which would provide for multiple use of the surface of public lands (H. Rept. 730) (p. 6557).

BILLS INTRODUCED

11. IMMIGRATION. S. 2149, by Sen. Langer, to amend the Refugee Relief Act of 1953 so as to relax certain requirements for qualifying under such act; to Judiciary Committee (p. 6491).

committee we went that far in our general discussion of this question.

Since the report was issued, the Administrator has checked into his own records. The estimate of the Bureau of the Budget was \$88 million. The House of Representatives voted \$84 million, and the Senate committee accepted the amount voted by the House of Representatives and did not recommend an increase in that amount.

But the Administrator, after considering the workload on the desks of the various adjudicators in his agency, and after considering the future workload, says that with all those factors in mind he believes the amount voted by the House of Representatives is insufficient. He says he is afraid that immediately after the beginning of the new fiscal year he will have to request a supplemental appropriation. Of course, it does not speak well for an administrator if he has to request a supplemental appropriation immediately after the regular appropriation for his agency has gone into effect.

So he has called this matter to our attention. He prefers to call it to our attention now rather than later. He prefers to have the regular appropriation bill amended in such a way as to take care of this situation rather than, immediately after the passage of the regular appropriation bill, to have to request of the Congress a supplemental appropriation.

The Bureau of the Budget has supported an appropriation of \$88 million. However, our committee voted for only \$84 million. For that reason, I think I am justified in saying that the Administrator called me by telephone and said that in checking on the amount of money provided by the bill and in checking on his workload and on the number of applications and on all the other factors, his opinion is that the fund is too limited, and will not permit him to do the job the law demands of him, particularly in view of the amendments made last year to the Social Security Act.

For that reason I have told my friend, the Senator from Delaware, that I believe the amendment has some merit. If the amendment is taken to conference, I assure him that the conferees on the part of the House will subject the conferees on the part of the Senate to the most rigid examination as to the merits of the proposed increase in the funds; but at that time we shall have obtained additional facts from the Administrator of the Old Age and Survivors Insurance Fund; and in reaching our final decision in the conference, we shall have the benefit of those facts.

I say definitely that there is some merit to the amendment.

Mr. WILLIAMS. Mr. President, let me say once again that I am not questioning the merits or demerits of the amendment. The point I am making is that it is proposed to appropriate an additional \$4 million on the floor of the Senate, without having any knowledge of what is behind the request. I think that is the wrong way to approach the question, and if the Senator wishes a vote on the amendment, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The legislative clerk called the roll, and the following Senators answered to their names:

Alken	Frear	McNamara
Allott	Fulbright	Millikin
Anderson	George	Monroney
Barkley	Goldwater	Morse
Barrett	Hayden	Mundt
Beall	Hickenlooper	Neely
Bender	Hill	Neuberger
Bennett	Holland	O'Mahoney
Bible	Ives	Payne
Bricker	Jackson	Purtell
Butler	Jenner	Robertson
Byrd	Johnson, Tex.	Russell
Capehart	Johnston, S. C.	Saltonstall
Carlson	Kennedy	Schoeppel
Case, N. J.	Kerr	Scott
Chavez	Kilgore	Smathers
Cotton	Knowland	Smith, Maine
Curtis	Kuchel	Smith, N. J.
Daniel	Langer	Stennis
Douglas	Lehman	Symington
Duff	Magnuson	Thurmond
Dworshak	Malone	Thye
Eastland	Mansfield	Welker
Ellender	Martin, Iowa	Wiley
Ervin	McCarthy	Williams
Flanders	McClellan	

Mr. JOHNSON. I announce that the Senator from Tennessee [Mr. GORE], the Senator from Rhode Island [Mr. GREEN], the Senator from Missouri [Mr. HENNINGS], the Senator from Minnesota, [Mr. HUMPHREY], the Senator from Tennessee [Mr. KEFAUVER], the Senator from Louisiana [Mr. LONG], the Senator from Rhode Island [Mr. PASTORE], and the Senator from Alabama [Mr. SPARKMAN], are absent on official business.

The Senator from Kentucky [Mr. CLEMENTS] is absent by leave of the Senate until June 21, 1955 on behalf of the Senate Appropriations Committee to conduct an on-the-spot study of specific matters relating to our foreign aid program.

The Senator from Montana [Mr. MURRAY] is absent by leave of the Senate to attend the International Labor Organization meeting in Geneva, Switzerland.

Mr. SALTONSTALL. I announce that the Senator from New Hampshire [Mr. BRIDGES], the Senator from Connecticut [Mr. BUSH], the Senator from Nebraska [Mr. HRUSKA], the Senator from Pennsylvania [Mr. MARTIN], and the Senator from North Dakota [Mr. YOUNG] are absent on official business.

The Senator from South Dakota [Mr. CASE] is absent by leave of the Senate.

The Senator from Illinois [Mr. DIRKSEN] is absent on official business for the Committee on Appropriations.

The Senator from Michigan [Mr. POTTER] is absent on official business attending the International Labor Organization meeting in Geneva, Switzerland.

The Senator from Utah [Mr. WATKINS] is absent on official business for the Committee on the Judiciary.

The PRESIDING OFFICER. A quorum is present. The question is on agreeing to the amendment offered by the Senator from Michigan [Mr. McNAMARA].

Mr. McNAMARA. Mr. President, I modify my amendment by striking out "\$88,000,000" and inserting in lieu thereof "\$86,000,000."

The PRESIDING OFFICER. The Senator modifies his amendment accordingly.

The question is on agreeing to the amendment, as modified.

Mr. WILLIAMS. Mr. President, I may say to the Senator from Michigan that I appreciate his modifying his amendment, because I believe it is well that the amendment be taken to conference where it may be examined. Therefore I am willing to go along with the amendment as modified.

Mr. McNAMARA. I thank the Senator from Delaware.

The PRESIDING OFFICER. The question is on agreeing to the amendment of the Senator from Michigan, as modified.

The amendment, as modified, was agreed to.

CONSTRUCTION OF DISTRIBUTION SYSTEMS ON CERTAIN FEDERAL RECLAMATION PROJECTS BY IRRIGATION DISTRICTS

The PRESIDING OFFICER laid before the Senate a message from the House of Representatives announcing its disagreement to the amendment of the Senate to the bill (H. R. 103) to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies, and requesting a conference with the Senate on the disagreeing votes of the two Houses thereon.

Mr. ANDERSON. I move that the Senate insist upon its amendment, agree to the request of the House for a conference, and that the Chair appoint the conferees on the part of the Senate.

The motion was agreed to; and the Presiding Officer appointed Mr. ANDERSON, Mr. JACKSON, Mr. O'MAHONEY, Mr. MILLIKIN, and Mr. WATKINS conferees on the part of the Senate.

RESEARCH IN DEVELOPMENT AND UTILIZATION OF SALINE WATERS

The PRESIDING OFFICER laid before the Senate a message from the House of Representatives announcing its disagreement to the amendment of the Senate to the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, and requesting a conference with the Senate on the disagreeing votes of the two Houses thereon.

Mr. ANDERSON. I move that the Senate insist upon its amendment, agree to the request of the House for a conference, and that the Chair appoint the conferees on the part of the Senate.

The motion was agreed to; and the Presiding Officer appointed Mr. ANDERSON, Mr. JACKSON, Mr. O'MAHONEY, Mr. MILLIKIN, and Mr. WATKINS conferees on the part of the Senate.

DEPARTMENTS OF LABOR, AND HEALTH, EDUCATION, AND WELFARE APPROPRIATIONS, 1956

The Senate resumed the consideration of the bill (H. R. 5046) making appropriations for the Departments of Labor, and Health, Education, and Welfare, and related agencies, for the fiscal year end-

ing June 30, 1956, and for other purposes.

Mr. KENNEDY. Mr. President, I call up my amendment, which is at the desk.

The PRESIDING OFFICER. The Secretary will state the amendment offered by the Senator from Massachusetts.

The LEGISLATIVE CLERK. On page 26, line 23, it is proposed to strike out "\$5,399,000" and insert in lieu thereof "\$5,899,000."

Mr. KENNEDY. The amendment would restore sufficient money to take care of a backlog of an estimated 88 basic research projects. The amount required to take care of all the projects would be \$1,051,000. The amendment would restore half that amount. I believe the Senator from Alabama [Mr. HILL] is willing to take the amendment to conference.

Mr. THYE. Mr. President, this is an item which relates to the basic scientific field. In committee we were in need of further information and additional facts on the subject. I believe the amendment is a proper one, and, speaking for this side, we are willing to take the amendment to conference.

Mr. HILL. Mr. President, we have no objection to the amendment, and we will be delighted to take the amendment to conference.

Mr. KENNEDY. I thank both the Senator from Alabama [Mr. HILL] and the Senator from Minnesota [Mr. THYE].

The PRESIDING OFFICER. The question is on agreeing to the amendment offered by the Senator from Massachusetts [Mr. KENNEDY].

The amendment was agreed to.

Mr. LEHMAN. Mr. President, I send an amendment to the desk, and I ask that it be stated.

The PRESIDING OFFICER. The Secretary will state the amendment.

The LEGISLATIVE CLERK. On page 20, line 2, it is proposed to strike out "\$2,000,000" and insert in lieu thereof "\$2,350,000."

The PRESIDING OFFICER. The question is on agreeing to the amendment offered by the Senator from New York.

Mr. WILLIAMS. Mr. President, will an explanation of the amendment be given?

Mr. LEHMAN. I shall explain it. The amendment would raise the amount of the appropriation for rehabilitation of the physically handicapped from \$2 million to \$2,350,000. The House figure is \$1,800,000. The Senate committee raised it to \$2 million. The Budget recommendation was \$2,350,000.

I spoke on this subject earlier today, as I have spoken probably a hundred times previously, both in committee and on the floor of the Senate.

There are in this country more than 2 million physically handicapped persons who constitute a great drain on the economy and the society of the Nation. But that is not all, Mr. President. The number of physically handicapped persons is increasing by 250,000 a year. We are helping only approximately 60,000 of them.

Mr. MORSE. Mr. President, will the Senator from New York yield?

Mr. LEHMAN. I shall be happy to yield.

Mr. MORSE. The Senator has pointed out the number of physically handicapped persons who are being helped, but those who are subject to help are many times more than 60,000. My recollection is that we are helping less than one-sixth of the number who could engage in gainful employment if vocational rehabilitation were made available to them. Is my figure too high?

Mr. LEHMAN. The Senator from Oregon is far too conservative. We are helping only one-fortieth of those who could be helped. The number of handicapped persons is in excess of 2 million. Moreover, the number is increasing at the rate of 250,000 a year. At this time there are 2¼ million persons who could be helped if sufficient facilities and means to train them were provided.

Mr. MORSE. I should like to have an accurate statement in the RECORD at this point. My understanding is that we could rehabilitate for complete economic self-sustenance at least 6 times the number of persons we are now trying to help, and, in addition, a much larger number could be helped to such an extent that they could earn at least a part of their living. But the Senator's figure is that instead of rehabilitating so that they could engage in gainful employment and completely sustain themselves 6 times the number we are now helping, we could rehabilitate 40 times the number we are now helping.

Mr. LEHMAN. I am predicating that figure on the fact that there is a backlog of more than 2 million physically handicapped persons, most of whom can be helped and made productive citizens. They can become wage earners. They can pay into the Treasury their part of the cost of government. We are barely scratching the surface. We are not even making a dent. We have not decreased the backlog of cases at all over the years.

Mr. HILL. Mr. President, will the Senator from New York yield at that point?

Mr. LEHMAN. I yield.

Mr. HILL. Dr. Howard Rusk, who is the Chairman of President Eisenhower's Commission on Health, has pointed out that the greatest deficiency is in the lack of trained and adequate personnel. We do not have the necessary trained personnel to carry on this work. In view of the situation, so far as I am concerned, I shall be happy to take the Senator's amendment to conference.

Mr. LEHMAN. In all the testimony given before the committee over a period of several years there has been brought out the fact that the bottleneck was in the training of personnel. I hope the chairman of the committee and the ranking member of the committee will agree to take this very praiseworthy and necessary amendment to conference.

The PRESIDING OFFICER. The question is on agreeing to the amendment offered by the Senator from New York [Mr. LEHMAN].

The amendment was agreed to.

The PRESIDING OFFICER. The bill is open to further amendment. If there be no further amendment to be proposed, the question is on the engrossment of the amendments and the third reading of the bill.

The amendments were ordered to be engrossed, and the bill to be read the third time.

The bill was read the third time.

Mr. MAGNUSON. Mr. President, I should like to compliment the Senator from Alabama [Mr. HILL] on the work he has done in connection with the bill. I could not let the opportunity go by without thanking him for what the bill provides in connection with cancer research. I am the author of the bill providing for the establishment of the original health institutes. We are moving in on cancer, the great killer.

Mr. HILL. Mr. President, the Senator from Washington did everything in his power to get these items increased.

The PRESIDING OFFICER. The bill having been read a third time, the question is, Shall the bill pass?

The bill (H. R. 5046) was passed.

Mr. HILL. Mr. President, I move that the Senate insist upon its amendments, request a conference with the House of Representatives thereon, and that the Chair appoint conferees on the part of the Senate.

The motion was agreed to; and the Presiding Officer appointed Mr. HILL, Mr. CHAVEZ, Mr. RUSSELL, Mr. KILGORE, Mr. MAGNUSON, Mr. STENNIS, Mr. THYE, Mr. MUNDT, Mrs. SMITH of Maine, Mr. DWORSHAK, and Mr. POTTER conferees on the part of the Senate.

MESSAGE FROM THE HOUSE

A message from the House of Representatives, by Mr. Maurer, its reading clerk, announced that the House had passed, without amendment, the bill (S. 153) to amend the Rural Electrification Act of 1936.

The message also announced that the House had agreed to the amendments of the Senate to the bill (H. R. 4725) to repeal sections 452 and 462 of the Internal Revenue Code of 1954.

ENROLLED BILL SIGNED

The message further announced that the Speaker had affixed his signature to the enrolled bill (S. 414) to authorize an examination and survey of the coastal and tidal areas of the eastern and southern United States, with particular reference to areas where severe damages have occurred from hurricane winds and tides, and it was signed by the President pro tempore.

ENROLLED BILL PRESENTED

The Secretary of the Senate reported that on today, June 6, 1955, he presented to the President of the United States the enrolled bill (S. 414) to authorize an examination and survey of the coastal and tidal areas of the eastern and southern United States, with particular reference to areas where severe damages have occurred from hurricane winds and tides.

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

Issued June 17, 1955
For actions of June 16, 1955
84th-1st - No. 101

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HIGHLIGHTS: Senate passed Commerce appropriation bill and selective service bill. Senate adopted conference report on salt-water research bill. House passed public works appropriation bill. House committee reported bill to transfer certain lands to Clemson College. House committee reported Federal pay bill.

SENATE

1. COMMERCE AND RELATED AGENCIES APPROPRIATION BILL, 1956. Passed with amendments this bill, H. R. 6367 (pp. 7219-34, 7243-63, 7266-7). Senate conferees were appointed (p. 7267).
2. SELECTIVE SERVICE. Passed with amendments H. R. 3005, to extend selective service for 4 years until July 1, 1959 (pp. 7270-6). Senate conferees were appointed (p. 7276).
3. SALT-WATER RESEARCH. Agreed to the conference report on H. R. 2126, to continue and expand the Interior Department research program on converting salt water to fresh water (pp. 7276-7).
4. RECLAMATION. Agreed to the conference report on H. R. 103, to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies (pp. 7277-8).
5. NOMINATION. Confirmed nomination of John B. Hollister to be Director of the International Cooperation Administration (p. 7072, June 15).
6. CONTRACTS. The Finance Committee ordered reported H. R. 4904, to extend the Renegotiation Act of 1951 for 2 years (p. D564).
7. LEGISLATIVE PROGRAM. Sen. Johnson indicated that the following bills may be among those to be considered today: S. 2097, transfer to USDA certain real property in the Virgin Islands; H. R. 2973, to transfer certain tract of land in Macon County, Ga. to the Ga. State Board of Education; H. R. 5188, prohibit USDA prediction of apple prices; S. 1472, financial assistance to desert land

entrymen; S. 1757, provide penalties for false grade marking; S. 1759, to consolidate experiment station authorizations; and S. 1400, to protect grain standards (p. 7278).

HOUSE

8. TRADE REGULATIONS. The Ways and Means Committee was authorized to file reports on H. R. 6040, the customs simplification; and H. R. 5560, which would provide for free importation of personal effects under government order (p. 7131).
9. APPROPRIATIONS. Conferees were appointed on H. R. 5240, the independent offices appropriation bill (p. 7134). Senate conferees have already been appointed.
Passed with amendments H. R. 6766, the public works appropriation bill, agreeing to an amendment to delete the authorization of a TVA steam plant (pp. 7134-7204). This bill provides appropriations for the Southwestern Power Administration, Tennessee Valley Authority (fertilizer and power interests), and certain flood-control, irrigation, and reclamation measures of the Interior and Army Departments.
10. RECLAMATION. Rep. Saylor suggested the disastrous effect the Echo Park reclamation project would have on the scenic value of the affected territory (pp. 7204-5).
11. LANDS. Agriculture Committee reported with amendment H. R. 4280, to transfer certain submarginal lands under the Agriculture Department to Clemson College (H. Rept. 856) (p. 7208).
12. PERSONNEL. Post Office and Civil Service Committee reported with amendment S. 67, the Federal pay bill (H. Rept. 857) (p. 7208).
13. LEGISLATIVE PROGRAM. The Majority Leader announced the following schedule for Mon., June 20: call of Consent Calendar; consideration of S. 67, Federal pay bill, under suspension of the rules; and other business (p. D566).
14. ADJOURNED until Mon., June 20 (p. 7208).

BILLS INTRODUCED

15. EXPORTS. S. 2256, by Sen. Fulbright, to authorize the guaranty of exports against certain risks of a political nature; to Banking and Currency Committee (p. 7211). Remarks of author (pp. 7211-3).
16. WATER COMPACT. S. 2260, by Sen. Kerr (for himself and others), granting the consent of Congress to the States of Arkansas, Louisiana, Oklahoma, and Texas to negotiate and enter into a compact relating to their interests in, and the apportionment of, the waters of the Red River and its tributaries; to Public Works Committee (p. 7211).
17. RUBBER. S. 2263, by Sen. Kilgore, to amend the Rubber Producing Facilities Disposal Act of 1953, to provide for the disposal of the Government-owned facility at Institute, W. Va.; to Banking and Currency Committee (p. 7211).
18. FOREIGN TRADE. H. R. 6868, by Rep. Anfuso, to amend the Agricultural Trade Development and Assistance Act of 1954 so as to authorize sales on credit; to Agriculture Committee (p. 7209).

training in the National Security Training Corps under the provisions of section 4 (a) of this act until the 35th anniversary of the date of their birth." Let us see upon whom this special liability falls: First of all, it falls upon those persons who are engaged in agricultural pursuits and who, to meet the exacting demands of farming even for a single season, have sought deferment; second, it hits those teachers, skilled laborers, scientists, engineers, and administrators whose services were found to be so indispensable that their employers sought and obtained deferment for them; third, it falls upon those young men who, while waiting for a long-delayed induction call, made good use of their time by continuing their studies and who sought to complete their university work through deferment rather than have it interrupted at an inopportune time by military service.

If he is questioned on the subject, General Hershey will, I am sure, tell you that it is absolutely impossible, under the present law, for all physically and mentally fit young men to serve because there are so many more than our Armed Forces can utilize. Each month 46,000 young men reach military age and the number is going up. Even with the abnormally high physical and mental standards that are being applied by the Armed Forces, only 12,000 of these 46,000 will be classified as IV-F. Of the remaining 34,000, only 10,000 per month are being called to service under the law, and even if generous allowance is made for the numbers of volunteers to the several branches of the service a substantial surplus is being added to the unutilized pool of military manpower each month. Under this law, then, more than a quarter of our men are being exempted for physical and mental reasons and an equal number will escape service because they are in excess of military requirements. The surplus will, moreover, increase rapidly with each successive year.

Yet, in the face of this paradoxical situation, the farmers, the skilled laborers, the engineers, the scientists, the teachers, and the students—the very people we may need more urgently elsewhere—are marked for service and are held liable for 9 years longer than those young men who are deemed to have no special qualifications for deferment. Gentlemen, in this respect, the law inadvertently has become highly discriminatory and exceedingly dangerous if we are to preserve our economic and industrial supremacy.

This committee is no less concerned with the adequacy of our technological defenses than are the Engineering and Scientific Manpower commissions. In fact, in 1951 this committee had the foresight to point to the urgent and continuing need to preserve and to build up our technological strength. It stressed this need in title 1, section 1, of the Universal Military Training and Service Act. Unfortunately, our technological manpower is now in far more precarious position than is our military manpower. There is an acute shortage of the former and an embarrassing surplus of the latter.

At the moment we are not engaged in any military struggle, though we must remain prepared for one. On the other hand, we are engaged in a technological struggle in which our slight lead is seriously threatened. The severe manpower limitations under which we are working can readily be demonstrated: Our universities report that for each engineer and scientist graduated this month there are five jobs available. Beginning salaries have again increased and are at an all-time high for technologically trained men. Just Tuesday of this week I heard Mr. Kaufman, of the Atomic Energy Commission, report that, if the applications of atomic energy are to proceed at an optimum rate, 40,000 additional scientists and engineers will be required by the AEC and

by industry within the next 2 years. Yet, the total 2-year output of our colleges and universities in all fields of science and engineering will be a scant 60,000, to be distributed among industry, education, and Government. In studying President Eisenhower's roadbuilding program, highway engineers discovered that it will require 32,000 more civil engineers than exist.

Information in the Commission's files provides some interesting facts about many companies that are engaged in military research, development, and production. One of these companies has 14,000 employees, of which 1,286 are engineers or scientists. The average age of these 1,286 specialists is 32, and 380, or 29 percent of them, have a military obligation. Another company, with 13,317 employees, has 1,098 scientists and engineers of average age 30. Of these, 350, or 32 percent, have military obligations. Still a third, with 18,000 on its payroll has 2,143 scientists and engineers of average age 30.2. Of the latter, 503, or 23 percent, have military obligations—and this company is 98 percent occupied on defense electronic work. The current annual report of the Republic Aviation Corp. reveals graphically the extent to which research requirements in defense industries have increased. In 1940 it required 17,000 engineering man-hours to develop a military airplane. In 1955 a modern jet fighter required 1,380,000 engineering man-hours for its development; and the company predicts, from designs already on its drawing boards, that this figure will increase to 2,150,000 man-hours by the year 1960.

In view of these facts, we believe it imperative to amend the Universal Military Training and Service Act drastically in several particulars, so as to assure the maintenance of our technological strength as well as our military strength. To this end we recommend:

1. That all men who have already reached age 26 and who have been deferred for occupational or educational reasons be relieved of further military liability.

2. That the proviso in section 6 (h), which makes men who have been deferred liable for military service until age 35, be deleted from the act.

3. That the Selective Service System be specifically given the discretion and the responsibility of selecting men for service or for deferment in accordance with the agricultural, educational, and industrial needs of the Nation, as defined in the present revised lists, and in subsequent revisions of the lists, of critical occupations and essential activities. This objective will be accomplished by writing into the bill the amendments contained in S. 969, proposed by Senator FLANDERS.

4. That this committee make provision in section 4 (d) (3) for a 6-month training period, on a voluntary basis for men under 19, and on an assignment basis under regulations established by the President for those over 19 who are filling critical occupations in essential activities. Only by some such provision will every American male have the privilege of serving his country in uniform.

5. That section 4 (d) (3) be further amended to provide that the reserve shall be screened into ready and standby components; that individuals in the Ready Reserve who possess critical skills shall be transferred to the Standby Reserve in accordance with regulations promulgated by the President; and that the availability of members of the Standby Reserve for additional military service be determined by the Director of Selective Service in accordance with regulations promulgated by the President.

These changes are dictated by the exigencies of the present situation, which involves a rapidly increasing military manpower pool, a steadily rising age of induction, an inade-

quate supply of scientific and technological manpower, and a broadening avenue of escape especially for young men who lack skills that are urgently needed for the national welfare and security. It is our misfortune that we cannot create new scientists and engineers by a simple process of induction. We must persuade individual men to enter those careers and then must wait 4 to 7 years while they acquire the training that will enable them to undertake productive work. Under these circumstances, we cannot afford to waste a single bit of our technological manpower. Nor in the national interest can we—nor do we want to—relieve any of them from the duty and privilege of every citizen to bear arms for his country.

Mr. RUSSELL. Mr. President, I appreciate the remarks of the Senator from South Dakota. In the hearings before the committee, the distinguished Senator from South Dakota and especially the distinguished junior Senator from Missouri [Mr. SYMINGTON] went very fully into the question of skilled technicians and the shortage which impends in the United States. I think there is a real shortage. Just how to relieve it and just how the draft has caused the shortage of engineers, are debatable questions.

As the Senator from South Dakota has said, there are many ramifications of this question. We have constantly to examine into these matters. Within a very few years there have been great changes in the manpower pool in the United States.

In 1951, when we were dealing with the so-called depression crop of young persons subject to the draft, we had to reduce the minimum age from 19 to 18½, in order to get enough young men to meet the requirements of Selective Service, and then we were scraping the very bottom of the barrel.

Today, it looks as if there might be an excess number, and that more young men than will be required for the military service will be reaching the age of service.

Certainly it is our responsibility to keep in touch with this entire subject—not only with the aspect of it affecting scientific technicians, whom the Senator from South Dakota has discussed in some detail, but also with all other aspects of the Selective Service System. That comes within the purview of the jurisdiction of the Armed Services Committee. Speaking as the one who at this time occupies the position of chairman of the committee, I wish to state that I will welcome the advice, assistance, and legislative suggestions of the distinguished Senator from South Dakota [Mr. CASE] in the effort to find concrete means of approaching relief in connection with this subject. Knowing as I do the ability of the distinguished Senator from South Dakota, I am sure he will bring to us his legislative suggestions.

Mr. CASE of South Dakota. Mr. President, I appreciate the kind remarks of the distinguished chairman of the Armed Services Committee.

In order to nail down for the RECORD the specific suggestion which was made, I should like to read, from page 55 of the hearings, a statement and a question. The question was asked by the

Senator from North Carolina [Mr. ERVIN] at the time when Dr. Meyerhoff appeared before the committee. I now read from page 55 of the hearings:

Senator ERVIN. Your main suggestion about amendment of the Selective Service Extension Act is about cutting off the period of time in which those are deferred in order that they might pursue an engineering or scientific education and also for other purposes, that they ought to cut them off at the 26-year age limit and not keep them in a state of uncertainty until 35.

Dr. MEYERHOFF. Yes, sir; for several reasons. As the figures we have and were presented to you in very brief summary show, a very large percentage of our engineers is below age 32.

I have a chart here which I would like to show you, that will indicate to you, you will see the number of men of military obligation and I think it will make it clear that if we take the engineers under age 35, they constitute what percentage?

Mr. CAVANAUGH. Almost 50 percent. One of the astounding things in this picture is we graduated 245,000 since 1937, which is almost half of the size of the entire profession in the United States.

I recognize that these men can continue in their deferment, but the uncertainty harasses them and harasses the companies which engage them. Since the manpower pool is now running about 1½ million who have not yet been physically examined, and since each month 46,000 young men are reaching military age, and the number constantly increases, whereas the calls are for only 10,000, it seems to me that we really ought to clarify the liability of men past 26 years of age, and offer whatever encouragement can be offered to those in the engineering field to proceed with their careers, without the threat of the draft hanging over them, or without having to be rescreened every 6 months or so.

Mr. President, I express my appreciation to the chairman of the committee for his indulgence in yielding to me and allowing me to speak, as it were, on his time.

The PRESIDING OFFICER. The question is on agreeing to the amendment offered by the Senator from Pennsylvania [Mr. MARTIN] to the committee amendment.

The amendment to the amendment was agreed to.

The PRESIDING OFFICER. The committee amendment is open to further amendment.

Mr. RUSSELL. Mr. President, I offer the amendment which I send to the desk and ask to have stated.

The PRESIDING OFFICER. The amendment offered by the Senator from Georgia will be stated.

The LEGISLATIVE CLERK. On page 5, line 24, in the committee amendment, after the word "has", it is proposed to insert the word "been."

The PRESIDING OFFICER. The question is on agreeing to the amendment offered by the Senator from Georgia.

The amendment to the amendment was agreed to.

The PRESIDING OFFICER. The question is on agreeing to the committee amendment, as amended.

The amendment, as amended, was agreed to.

The PRESIDING OFFICER. The bill is open to further amendment. If there be no further amendment to be proposed, the question is on the engrossment of the amendment and the third reading of the bill.

The amendment was ordered to be engrossed and the bill to be read a third time.

The bill (H. R. 3005) was read the third time and passed.

The title was amended so as to read: "An act to further amend the Universal Military Training and Service Act by extending the authority to induct certain individuals and by extending the authority to require the special registration, classification, and induction of certain medical, dental, and allied specialist categories, and for other purposes."

Mr. RUSSELL. Mr. President, I move that the Senate insist on its amendment, request a conference with the House of Representatives thereon, and that the Chair appoint the conferees on the part of the Senate.

The motion was agreed to; and the Presiding Officer appointed Mr. RUSSELL, Mr. BYRD, Mr. JOHNSON of Texas; Mr. SALTONSTALL, and Mr. BRIDGES conferees on the part of the Senate.

Mr. KNOWLAND. I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The legislative clerk proceeded to call the roll.

Mr. KNOWLAND. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

DEPARTMENT OF DEFENSE APPROPRIATIONS, 1956

Mr. JOHNSON of Texas. Mr. President, I move that the Senate proceed to the consideration of Calendar No. 549, House bill 6042, the Defense Department appropriation bill.

The PRESIDING OFFICER. The bill will be stated by title for the information of the Senate.

The LEGISLATIVE CLERK. A bill (H. R. 6042) making appropriations for the Department of Defense for the fiscal year ending June 30, 1956, and for other purposes.

The PRESIDING OFFICER. The question is on agreeing to the motion of the Senator from Texas.

The motion was agreed to; and the Senate proceeded to consider the bill, which had been reported from the Committee on Appropriations with amendments.

CAPT. MOSES M. RUDY—CHANGE OF CONFEREES

Mr. JOHNSON of Texas. Mr. President, on behalf of the chairman of the Committee on the Judiciary [Mr. KILGORE], I ask unanimous consent that the Senator from Mississippi [Mr. EASTLAND]

be excused from further service as a conferee on the bill (H. R. 1142) for the relief of Capt. Moses M. Rudy, and that the Senator from Arkansas [Mr. McCLELLAN] be designated to serve in his place.

The PRESIDING OFFICER. Is there objection to the request of the Senator from Texas? The Chair hears none, and it is so ordered.

RESEARCH IN DEVELOPMENT AND UTILIZATION OF SALINE WATERS—CONFERENCE REPORT

Mr. JOHNSON of Texas. Mr. President, on behalf of the Senator from New Mexico [Mr. ANDERSON], I submit a report of the committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters. I ask unanimous consent for the present consideration of the report.

The PRESIDING OFFICER. The report will be read for the information of the Senate.

The report was read, as follows:

CONFERENCE REPORT

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the House recede from its disagreement to the amendment of the Senate and agree to the same with an amendment as follows: In lieu of the matter inserted by the Senate amendment insert the following:

"That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C., secs. 1951 ff.), is hereby amended as follows:

"(1) By modifying subsection (a) of section 2 of said Act so as to read: 'by means of research grants and contracts as set forth in subsection (d) of this section and by use of the facilities of existing Federal scientific laboratories within the monetary limits set forth in section 8 of this Act, to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation.'

"(2) By modifying section 3 of said Act to add the following: 'Similarly, the fullest cooperation by and with the Atomic Energy Commission and the Civil Defense Administration in research shall be carried out in the interest of achieving the objectives of the program'

"(3) By modifying section 8 of said act so as to read: 'There are authorized to be appropriated such sums, but not more than \$10,000,000 in all, as may be required (a) to carry out the provisions of this act during the fiscal years 1953 to 1963, inclusive, (b) to finance for not more than two years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this act, and (c) during the same additional period plus one more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this act. Departmental expenses for direction of the program authorized by this act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed

\$2,000,000 and not more than \$2,500,000 shall be expended for research and development in Federal laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable: *Provided*, That not to exceed 10 per centum of the funds available in any one year for research and development may be expended in cooperation with public or private agencies in foreign countries in the development of processes useful to the program in the United States: *And provided further*, That contracts or agreements made in pursuance of this proviso shall provide that the results or information developed in connection therewith shall be available without cost to the program in the United States herein authorized."

And the Senate agree to the same.

CLINTON P. ANDERSON,
HENRY M. JACKSON,
JOSEPH C. O'MAHONEY,
EUGENE D. MILLIKIN,
ARTHUR V. WATKINS,

Managers on the Part of the Senate.

CLAIR ENGLE,
WAYNE N. ASPINALL,
LEO W. O'BRIEN,
A. L. MILLER,
JOHN P. SAYLOR,

Managers on the Part of the House.

The PRESIDING OFFICER. Is there objection to the present consideration of the report?

There being no objection, the Senate proceeded to consider the report.

The PRESIDING OFFICER. Is there objection to the present consideration of the conference report?

There being no objection, the Senate proceeded to consider the report.

Mr. KNOWLAND. Mr. President, I understand that this report is signed by all the conferees on both sides.

Mr. JOHNSON of Texas. That is my understanding. It was handled by the distinguished Senator from New Mexico [Mr. ANDERSON], and there is no controversy involved. All the conferees signed the report.

Mr. President, I ask unanimous consent to have printed in the RECORD at this point a statement by the Senator from New Mexico [Mr. ANDERSON].

There being no objection, the statement was ordered to be printed in the RECORD, as follows:

STATEMENT BY SENATOR ANDERSON IN CONNECTION WITH CONFERENCE REPORT ON H. R. 2126

Although it is not customary for the managers on the part of the Senate to make a statement in connection with a conference report on the disagreeing votes of the two Houses on Senate amendments to a House bill, because of its importance I desire to call the attention of the Senate to the conference report on H. R. 2126, to amend the act of July 3, 1952, relating to research in the development and utilization of saline water. The conferees of the two Houses, at the session yesterday, were unanimous in accepting the Senate amendments which place emphasis on the importance and urgency of the saline water program, which was inaugurated by the act of July 3, 1952.

The language recommended in the conference report is designed to assure close cooperation and coordination of the saline water program with and by the Atomic Energy Commission and the Civil Defense Administration for the purpose of achieving the objectives of the program. Emphasis is placed on national and world conditions which require tying the saline water program in with activities of the Atomic Energy

Commission and the Civil Defense Administration.

It was the view of the conferees that the Secretary of the Interior would be expected to energize the program with the increased authorization of funds to be appropriated so as to bring about early solution of the problem of converting saline water to potable uses at economical costs. The situations with respect to water supplies in this country are becoming exceedingly critical in many areas. This condition is brought about by the rapidly increasing population and expanding industry with heavy drains on the existing water supplies. The demineralization of brackish water in the irrigated agricultural areas of the West is also a vital consideration.

Of even more importance in advancing this program is national and international conditions in this atomic age which emphasize the urgency of bringing the objectives of this program to a satisfactory conclusion. Concrete results are vital to the safety, security, and health of large segments of the 160 million people in this country.

All concerned with this program should be on notice that the expanded implementation provided by this legislation is expected to bring results that will be available to meet emergencies and have long-time continuing values to the country.

Approval of the conference report will be tantamount to concurrence of the Senate in these views for the information of the Department and the Bureau of the Budget in recommending appropriations.

The PRESIDING OFFICER. The question is on agreeing to the conference report.

The report was agreed to.

CONSTRUCTION OF DISTRIBUTION SYSTEMS ON AUTHORIZED FEDERAL RECLAMATION PROJECTS—CONFERENCE REPORT

Mr. JOHNSON of Texas. Mr. President, on behalf of the Senator from New Mexico [Mr. ANDERSON], I submit a report of the committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 103) to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies. I ask unanimous consent for the present consideration of the report.

The PRESIDING OFFICER. The report will be read for the information of the Senate.

The report was read, as follows:

CONFERENCE REPORT

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 103) to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the House recede from its disagreement to the amendment of the Senate and agree to the same with an amendment as follows: In lieu of the matter inserted by the Senate amendment insert the following:

"That irrigation distribution systems authorized to be constructed under the Federal reclamation laws may, in lieu of construction by the Secretary of the Interior (referred to in this Act as the 'Secretary'), be constructed by irrigation districts or other public agencies according to plans

and specifications approved by the Secretary as provided in this Act.

"SEC. 2. To assist financially in the construction of the aforesaid local irrigation distribution systems by irrigation districts and other public agencies the Secretary is authorized, on application therefor by such irrigation districts or other public agencies, to make funds available on a loan basis from moneys appropriated for the construction of such distribution systems to any irrigation district or other public agency in an amount equal to the estimated construction cost of such system, contingent upon a finding by the Secretary that the loan can be returned to the United States in accordance with the general repayment provisions of sections 2 (d) and 9 (d) of the Reclamation Project Act of August 4, 1939, and upon a showing that such district or agency already holds or can acquire all lands and interests in land (except public and other lands or interests in land owned by the United States which are within the administrative jurisdiction of the Secretary and subject to disposition by him) necessary for the construction, operation, and maintenance of the project. The Secretary shall, upon approval of the loan, enter into a repayment contract which includes such provisions as the Secretary shall deem necessary and proper to provide assurance of prompt repayment of the loan. The term 'irrigation district or other public agency' shall for the purposes of this Act mean any conservancy district, irrigation district, water users' organization, or other organization, which is organized under State law and which has capacity to enter into contracts with the United States pursuant to the Federal reclamation laws.

"SEC. 3. The Secretary shall require as a condition to any such loan, that the water users' organization contribute in money or materials, labor, lands, or interests in land, computed at their reasonable value, a portion, not in excess of ten per centum, of the construction cost of such project (including all costs of acquiring lands, and interests in land), and that the plans for the distribution system are in accord with sound engineering practices and will achieve the purposes for which the system was authorized. Organizations contracting for repayment of the loans shall operate and maintain such works in conformity with reasonable contractual requirements determined to be appropriate for the protection of the United States, and when full repayment has been made to the United States, the Secretary shall relinquish all claims under said contracts. Title to distribution works constructed pursuant to this Act shall at all times be in the contracting water users' organizations. In addition to any other authority the Secretary may have to grant rights-of-way, easements, flowage rights, or other interests in lands for project purposes, the Secretary or the head of any other executive department may sell and convey to any irrigation district or other public agency at fair value lands and rights-of-way owned by the United States (other than lands being administered for national park, national monument, or wildlife purposes) which are reasonably necessary to the construction, operation, and maintenance of an irrigation distribution system under the provisions of this Act. No benefits or privileges under reclamation laws including repayment provisions shall be denied an irrigation distribution system because such system has been constructed pursuant to this Act. The provisions of this Act shall apply only to irrigation purposes, including incidental domestic and stock water, and loans hereunder shall be interest free. Nothing in this Act shall be construed to repeal or limit the procedural and substantive requirements of section 8 of the Act of June 17, 1902.

"SEC. 4. Except as herein otherwise provided, the provisions of the Federal reclama-

tion laws, and Acts amendatory thereto, are continued in full force and effect."

And the Senate agree to the same.

CLINTON P. ANDERSON,
HENRY M. JACKSON,
JOSEPH C. O'MAHONEY,
EUGENE D. MILLIKIN,
ARTHUR V. WATKINS,

Managers on the Part of the Senate.

CLAIR ENGLE,
WAYNE N. ASPINALL,
LEO W. O'BRIEN,
A. L. MILLER,
JOHN P. SAYLOR,

Managers on the Part of the House.

The PRESIDING OFFICER. Is there objection to the present consideration of the report?

There being no objection, the Senate proceeded to consider the report.

The PRESIDING OFFICER. Is there objection to the present consideration of the conference report?

There being no objection, the Senate proceeded to consider the report.

Mr. KNOWLAND. Mr. President, I wish to make a similar inquiry to the one propounded by me with respect to the previous conference report. Is my information correct, that this report was also signed by all the conferees on both sides, on the part of the Senate?

Mr. JOHNSON of Texas. That is my information.

The PRESIDING OFFICER. The question is on agreeing to the conference report.

The report was agreed to.

LEGISLATIVE PROGRAM — UNANIMOUS-CONSENT AGREEMENT TO LIMIT DEBATE ON DEFENSE DEPARTMENT APPROPRIATION BILL

Mr. JOHNSON of Texas. Mr. President, the Defense Department appropriation bill is the unfinished business. However, it is planned, when the Senate convenes tomorrow, to take up the Austrian treaty. At the conclusion of the consideration of the Austrian treaty, it may be that there will be some general bills on the calendar to which no objection has been offered, and which have been cleared by the minority leader and by the policy group on this side of the aisle.

I shall now list the order numbers, so that Senators who may be interested in any of the bills will be on notice that it is possible that they will be taken up either before the Austrian treaty is considered tomorrow, or following consideration of the Austrian treaty.

The list is as follows:

Calendar No. 518, House bill 4573, authorizing Gus A. Guerra, his heirs, legal representatives, and assigns, to construct, maintain, and operate a toll bridge across the Rio Grande, at or near Rio Grande City, Tex.

Calendar No. 519, House bill 2984, authorizing E. B. Reyna, his heirs, legal representatives and assigns to construct, maintain, and operate a toll bridge across the Rio Grande, at or near Los Ebanos, Tex.

Calendar No. 543, House bill 208, granting the consent of Congress to the States of Arkansas and Oklahoma, to negotiate

and enter into a compact relating to their interests in, and the apportionment of, the waters of the Arkansas River and its tributaries as they affect such States.

Calendar No. 544, House bill 3878, to amend section 5 of the Flood Control Act of August 18, 1941, as amended, pertaining to emergency flood control work.

Calendar No. 545, House bill 4426, to amend section 7 of the act approved September 22, 1922, as amended.

Order No. 546, House bill 5293, to authorize certain sums to be appropriated immediately for the completion of the construction of the Inter-American Highway.

Order No. 547, Senate bill 890, to extend and strengthen the Water Pollution Control Act.

Order No. 548, Senate bill 1550, authorizing the State Highway Commission of the State of Maine to construct, maintain, and operate a free highway bridge across the St. Croix River between Calais, Maine, and St. Stephen, New Brunswick, Dominion of Canada.

Order No. 549, House bill 6042.

Mr. KNOWLAND. Mr. President, Order No. 549 is the unfinished business.

Mr. JOHNSON of Texas. That is correct. I am sorry. I may say to the Senator, however, that it may be taken up tomorrow, but I am sure there will not be any votes on Friday or on Saturday, and if we are able to obtain a unanimous consent agreement, we will not have any votes before 3 o'clock on Monday.

Order No. 550, Senate bill 2237, to amend the act of May 26, 1949, to strengthen and improve the organization of the Department of State, and for other purposes.

Order No. 551, Senate Resolution 93, to appoint a subcommittee to work toward the goal of world disarmament.

Order No. 552, Senate Resolution 112, to appoint Members of the Senate to attend the North Atlantic Treaty Organization Conference in Paris in July 1955.

Order No. 553, Senate Concurrent Resolution 29, authorizing the appointment of a congressional delegation to attend the North Atlantic Treaty Organization Parliamentary Conference.

Order No. 555, House bill 5841, to repeal the fee-stamp requirement in the Foreign Service and amend section 1728 of the Revised Statutes, as amended.

Order No. 556, House bill 5842, to repeal a service charge of 10 cents per sheet of 100 words, for making out and authenticating copies of records in the Department of State.

Order No. 557, House bill 5860, to authorize certain officers and employees of the Department of State and the Foreign Service to carry firearms.

Order No. 558, Senate bill 1966, to amend the Interstate Commerce Act to provide for filing of documents evidencing the lease, mortgage, conditional sale, or bailment of motor vehicles sold to or owned by certain carriers subject to such act.

Order No. 560, Senate Joint Resolution 77, to modify the authorized project for Ferrells Bridge Reservoir, Tex., and to

provide for the local cash contribution for the water supply feature of the reservoir.

Order No. 561, House bill 6410, to authorize the construction of a building for Museum of History and Technology for the Smithsonian Institution, including the preparation of plans and specifications, and all other work incidental thereto.

Order No. 562, Senate bill 2097, to authorize the transfer to the Department of Agriculture, for agricultural purposes, of certain real property in St. Croix, V. I.

Order No. 563, Senate bill 2098, to amend Public Law 83, 83d Congress.

Order No. 564, House bill 2973, to provide for the conveyance of all right, title, and interest of the United States in a certain tract of land in Macon County, Ga., to the Georgia State Board of Education.

Order No. 565, House bill 5188, to prohibit publication by the Government of the United States of any prediction with respect to apple prices.

Order No. 566, Senate bill 1472, to enable the Secretary of Agriculture to extend financial assistance to desert land entrymen to the same extent as such assistance to available to homestead entrymen.

Order No. 567, Senate bill 1757, to amend the act known as the "Agricultural Marketing Act of 1946," approved August 14, 1946.

Order No. 568, Senate bill 1759, to consolidate the Hatch Act (1887) and laws supplementary thereto relating to the appropriation of Federal funds for the support of agricultural experiment stations in the States, Alaska, Hawaii, and Puerto Rico.

Order No. 569, Senate bill 1400, to protect the integrity of grade certificates under the United States Grain Standards Act.

I have previously announced the possibility of bringing up additional bills. It may be too optimistic to expect that we can consider all of these bills, but I should like to have the Senate on notice that if we have the time we will feel at liberty to proceed to their consideration.

Mr. President, on behalf of myself and the distinguished minority leader, I now submit a unanimous-consent request, and I ask that it be stated.

The PRESIDING OFFICER. The Secretary will state the unanimous-consent request.

The legislative clerk read the proposed unanimous-consent agreement, as follows:

UNANIMOUS-CONSENT AGREEMENT

Ordered, That, effective on Monday, June 20, 1955, at the conclusion of routine morning business, during the further consideration of the bill H. R. 6042, the Department of Defense Appropriation Act, 1956, debate on any amendment, motion, or appeal, except a motion to lay on the table, shall be limited to 2 hours, to be equally divided and controlled by the mover of any such amendment or motion and the majority leader: *Provided*, That in the event the majority leader is in favor of any such amendment or motion, the time in opposition thereto

Sen. Carlson inserted a resolution from the Kansas Watersheds Association urging consideration of water and land conservation measures in that area (pp. 7362-3).

5. SALT-WATER RESEARCH. Received a resolution from the California Legislature urging that some of saline water research facilities be located in that State (pp. 7360-1).
6. FARM INCOME. Sen. Langer inserted a resolution from the machinists association urging Congress to enact legislation equitable to the small family-type farmer (p. 7362).
7. RURAL ELECTRIFICATION. Sen. Carlson inserted a letter and resolution from a Kansas electric cooperative association opposing recommendations of the "Hoover Commission," which would change any aspect of the rural electric cooperative program (p. 7362).
8. ANIMAL DISEASE. Sen. Wiley inserted a newspaper article commenting favorably on voluntary efforts by dairy farmers to eliminate and control Bang's disease. Sen. Wiley suggested that funds continue to be made available to the Agriculture Department for disease research and control (p. 7368).
9. CONTRACTS. The Finance Committee reported with amendments H. R. 4904, to extend for two years the Renegotiation Act of 1951 (S. Rept. 582) (p. 7363).
10. FOREIGN TRADE. Sen. Martin, Iowa, inserted his statement urging restrictive measures in relation to American participation in the proposed general agreement on trade and tariffs (pp. 7369-70).
11. FOREST LANDS. Passed, as reported, H. R. 4853, to authorize the sale of certain land in Alaska to the Pacific Northern Timber Company (p. 7385).

HOUSE

12. PERSONNEL. Passed, 370 to 3, with amendment, S. 67, providing pay increases for Federal employees (pp. 7437, 7443-53). House and Senate conferees were appointed (pp. 7405-7, 7453). For provisions of this bill see Digest 100.
The Ways and Means Committee reported without amendment H. R. 5560, to make permanent the existing privilege of free importation of personal and household effects brought into the U. S. under Government orders (H. Rept. 859) (p. 7488).
13. SALT-WATER RESEARCH. Received the conference report on H. R. 2126, to continue and expand the Interior Department research program on converting salt water to fresh water (H. Rept. 861) (pp. 7438-9). The Senate agreed to this conference report on June 16.
14. RECLAMATION. Received the conference report on H. R. 103, to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies (H. Rept. 862) (p. 7439). The Senate agreed to this conference report on June 16.
15. FARM LOANS. The Agriculture Committee reported with amendments H. R. 5168, to provide for the retirement of Government capital in certain institutions operating under the supervision of FCA and to increase borrower participation in the management and control of the Federal Farm Credit System (H. Rept. 863) (p. 7488).

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

Issued June 21, 1955
For actions of June 20, 1955
84th-1st - No. 103

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HIGHLIGHTS: House passed Federal pay bill and forest mining bill. House passed bills to extend livestock loans and to increase per-diem allowances. House received conference report on salt-water research bill. House committee reported farm credit bill. Senate passed emergency loans extension bill and defense appropriation bill. Sen. Ellender inserted and discussed CCC statement on price support costs, etc.

SENATE

1. EMERGENCY LOANS. Passed as reported S. 1582, which would extend emergency loans for two years (pp. 7424-5).
2. APPROPRIATIONS. Passed with amendments H. R. 6042, making appropriations for the Defense Department for 1956 (pp. 7388-7404, 7407-9, 7410-24).
Postponed debate on H. R. 6499, the general Government matters appropriations bill for 1956, until Tues., June 21 (p. 7428).
3. COMMODITY CREDIT CORPORATION. Sen. Ellender inserted a summary of the price supports program and Commodity Credit Corporation activities prepared by that Corporation (pp. 7425-8).
4. IMMIGRATION. Received a resolution from the California Legislature urging consideration of relief measures for Mexican labor immigrants (p. 7360-1).
5. RECLAMATION. Received a resolution from the California Legislature urging water and land conservation measures in the Central Valley (pp. 7360-1).

AMENDING THE ACT OF JULY 3, 1952, RELATING TO RESEARCH IN THE DEVELOPMENT AND UTILIZATION OF SALINE WATERS

JUNE 20, 1955.—Ordered to be printed

Mr. ENGLE, from the committee of conference, submitted the following

CONFERENCE REPORT

[To accompany H. R. 2126]

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the House recede from its disagreement to the amendment of the Senate and agree to the same with an amendment as follows:

In lieu of the matter inserted by the Senate amendment insert the following: *That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C., secs. 1951 ff.), is hereby amended as follows:*

(1) *By modifying subsection (a) of section 2 of said Act so as to read: "by means of research grants and contracts as set forth in subsection (d) of this section and by use of the facilities of existing Federal scientific laboratories within the monetary limits set forth in section 8 of this Act, to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation".*

(2) *By modifying section 3 of said Act to add the following: "Similarly, the fullest cooperation by and with the Atomic Energy Commission and the Civil Defense Administration in research shall be carried out in the interest of achieving the objectives of the program."*

(3) *By modifying section 8 of said Act so as to read: "There are authorized to be appropriated such sums, but not more than \$10,000,000 in all, as may be required (a) to carry out the provisions of this Act during the fiscal years 1953 to 1963, inclusive, (b) to finance for not more than two years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant*

to this Act, and (c) during the same additional period plus one more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this Act. Departmental expenses for direction of the program authorized by this Act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed \$2,000,000 and not more than \$2,500,000 shall be expended for research and development in Federal laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable: Provided, That not to exceed 10 per centum of the funds available in any one year for research and development may be expended in cooperation with public or private agencies in foreign countries in the development of processes useful to the program in the United States: And provided further, That contracts or agreements made in pursuance of this proviso shall provide that the results or information developed in connection therewith shall be available without cost to the program in the United States herein authorized."

And the Senate agree to the same.

CLAIR ENGLE,
WAYNE N. ASPINALL,
LEO W. O'BRIEN,
A. L. MILLER,
JOHN P. SAYLOR,

Managers on the Part of the House.

CLINTON P. ANDERSON,
HENRY M. JACKSON,
JOSEPH C. O'MAHONEY,
EUGENE D. MILLIKIN,
ARTHUR V. WATKINS,

Managers on the Part of the Senate.

STATEMENT OF THE MANAGERS ON THE PART OF THE HOUSE

The managers on the part of the House, at the conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, submit the following statement in explanation of the effect of the action agreed upon and recommended in the accompanying conference report:

The language agreed upon in the conference does not alter or change the basic purposes or provisions of the bill as passed by the House. The changes are in the amounts authorized to be appropriated and used for various purposes. The managers for the House agreed with the Senate position that national and international conditions require that the program be expedited and, therefore, the amount (\$10,000,000) proposed by the Senate for the research program over the 13-year period is retained in the bill.

The Nation's rapidly increasing population and expanding industry, with the corresponding rapidly increasing needs for water, the critical water situations that have developed in many areas in recent years, and national and international conditions in this atomic age all reflect the imperative need for speeding the objectives of this program. It may become necessary within the term of this program for many areas to depend on salt or saline water conversion for a water supply. Ways and means must be found without undue delay for economically converting salt or saline water to fresh water. The program cannot be allowed to drift along without producing concrete results, and it is expected that with the expanded implementation of the saline-water program authorized by this legislation results will be obtained.

The language agreed upon in the conference specifically requires close cooperation and coordination of the saline water research program with and by the Atomic Energy Commission and the Civil Defense Administration in the interest of achieving the objectives of the program. National and world conditions emphasize the desirability of tying the saline-water program in directly with the Atomic Energy and Civil Defense activities. Also, energy is a primary factor in the demineralization of saline water and atomic power may in the future be the answer to low-cost production of fresh water from salt or saline water.

CLAIR ENGLE,
WAYNE N. ASPINALL,
LEO W. O'BRIEN,
A. L. MILLER,
JOHN P. SAYLOR,
Managers on the Part of the House.

further amend the Universal Military Training and Service Act by extending the authority to induct certain individuals, and to extend the benefits under the dependents Assistance Act to July 1, 1959, with a Senate amendment thereto, disagree to the Senate amendment, and agree to the conference asked by the Senate.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the request of the gentleman from Georgia? [After a pause.] The Chair hears none, and appoints the following conferees: Messrs. VINSON, BROOKS of Louisiana, KILDAY, SHORT, and ARENS.

FEDERAL EMPLOYEES RATE A PAY PROMOTION

(Mr. LANE asked and was given permission to address the House for 1 minute and to revise and extend his remarks.)

Mr. LANE. Mr. Speaker, Federal employees are not only civil servants of the American Public.

They give indispensable assistance to every of Member of Congress.

It would be unfortunate, on our part, if we "took them for granted."

For many years it was assumed that, as soon as a person acquired civil-service status in one of the regular agencies of the United States Government, we could forget about him, or her.

What more could a person want than job security, in an age where security is supposed to be the answer to all economic problems?

No lay-offs.

No part-time work.

Steady, for 30 or 40 or 50 years, with the present of a watch at the end of the trail.

"What more could these permanent status Federal employees expect than a guaranteed lifetime wage?" was the comment of a few cynics.

Forgetting that it was a permanent income for some, and a living income, for none.

The static salaries of Federal employees fell behind the rising cost of living, and the improving wage standards of their fellow Americans in private enterprise.

Something was wrong with the job-security formula, even for those who were not affected by reductions in force.

The morale of Federal employees slipped, noticeably.

The job-turnover rate reached alarming proportions.

Even Presidents of the United States took time out to wonder why Federal employees were no longer satisfied with their work, and to consider ways and means of providing the incentives that would hold experienced and trusted employees whose places could be filled only at considerable cost and inconvenience, if ever.

To work on a treadmill that causes a person to lose ground no matter how hard he tries to advance, is no encouragement for a person to remain in the Federal service.

Private industry, on the other hand, is quick to notice ability, and to reward it, voluntarily.

Federal employees, however, have had to wage an uphill fight, and over a long period of time, to awaken those who control the purse-strings that Government workers are also human beings who must be able to make both ends meet if they are to do their best work.

For the past year and a half we have seen this vital issue kicked around for political advantage.

This has not fooled the Government workers for 1 minute.

If anything, it has added to their discontent.

The time has come, therefore, for the Congress to pass a genuine pay increase bill, and by a unanimous vote, if the harm that has been done to the morale of Federal employees is to be repaired.

We have established a precedent in our own case by raising our own salaries generously.

We have increased the pay of career personnel in the Armed Forces.

We have made it possible for letter carriers and postal clerks to earn well over \$4,000 a year.

The 1,073,262 Federal employees come last, but their arguments are now the strongest.

There is no doubt whatever that they have earned and will get an upward pay adjustment.

The only question is, "How much?" The Senate has voted 10 percent.

The House Post Office and Civil Service Committee has recommended 7½ percent.

The bill to increase postal salaries has already become law, and dissatisfaction is already apparent with its two-installment increase to 8.2 percent, with proportionately higher percentage increases for those in the upper brackets.

I suggest that we do not write similar irritations into the Federal employees pay raise bill.

An across-the-board boost would be fair to all.

Personally, I believe that a 10-percent raise would not be too much.

But, whatever this House does decide, I hope that it will overwhelmingly endorse a substantial and long-overdue salary increase for all Federal workers today.

SPECIAL ORDER GRANTED

Mr. PATMAN asked and was given permission to address the House for 40 minutes today, following the legislative program of the day and any special orders hereto entered, and to revise and extend his remarks and include extraneous matter.

CORRECTION OF RECORD

Mr. NATCHER. Mr. Speaker, in the course of the consideration of H. R. 6766 I offered an amendment to change the figure for "Construction, general," for civil functions from \$322,262,800 to \$368,969,800. By a substitute amendment and an amendment to the substitute, this figure was subsequently changed to \$369,894,800.

The purpose of my amendment was to restore to the appropriation bill the items approved by the Bureau of the

Budget which has been deleted or reduced by the Appropriations Committee, with 2 or 3 exceptions where the deletion or reduction had been suggested by the Corps of Engineers.

In the course of my remarks, I submitted a list of the projects which were affected. Unfortunately, in the confusion attendant at the time of the debate, the list was not complete. I ask unanimous consent, therefore, that there be inserted in the permanent Record the complete list of projects involved.

The SPEAKER. Is there objection to the request of the gentleman from Kentucky?

There was no objection.

CORRECTION OF ROLL CALL

Mr. BURLESON. Mr. Speaker, on Thursday, June 16, I was present and answered "present" to quorum call No. 87. The Record inadvertently shows that I was absent. I ask unanimous consent that the Record and Journal be corrected accordingly.

The SPEAKER. Is there objection to the request of the gentleman from Texas?

There was no objection.

CORRECTION OF RECORD

Mr. CORBETT. Mr. Speaker, the Record for Thursday, June 16, at page 7189 in two instances erroneously attributes remarks to me, which, I believe, were made by the gentleman from Pennsylvania [Mr. SCOTT]. I ask unanimous consent that the Record be corrected accordingly.

The SPEAKER. Is there objection to the request of the gentleman from Pennsylvania?

There was no objection.

CONGRESSIONAL SECRETARIES' SHOW

(Mr. MILLER of Nebraska asked and was given permission to address the House for 1 minute and to revise and extend his remarks, and to include the program of the congressional secretaries.)

Mr. MILLER of Nebraska. Mr. Speaker, during the past week all of us have had an opportunity to study the "flyer" I hold in my hand—as they sometimes say in Nebraska—and our attention has been drawn by the big black letters which read—"Now Hear This." It carries the news that our secretaries, who have been rehearsing for 6 weeks to present their annual variety show, Revisin' and Extendin', will donate the proceeds to a critically needed clinic for retarded children. In years past our secretaries have presented Revisin' and Extendin'—without unanimous consent—solely for the entertainment of the Members of the House and Senate and their families. Mr. Speaker, I am proud that this, the first benefit ever launched by the Congressional Secretaries' Club has been arranged during the administration of my secretary, Miss Marie Warne, who is president of the club this year. I want to urge that every Member of this

House help the Congressional Secretaries' Club, the Greater Washington Council for Retarded Children—an association of parents of retarded children—and HELP—Help Exceptional Little People—an association which aids them—establish this medical center. Georgetown Hospital will provide a staff of doctors, nurses, and space for the clinic. We Members of the House should be more than willing to help our secretaries in this effort to equip this sorely needed diagnostic and treatment center.

You know, Mr. Speaker, a secretary's greatest attribute—particularly a secretary to a Member of Congress—is loyalty. Let us show our hardworking, loyal secretaries that we realize that loyalty is not a one-way street. Let us show them that we appreciate their attitude toward us and our interests and that we are proud and glad to help them in this worthwhile endeavor. If you have not bought your tickets, please step down to the House Restaurant now and make your purchase. Revisin' and Extendin', 1955, will be presented tomorrow night at 8:30 in the beautiful new ballroom at the Sheraton Park Hotel. Let us all be there.

NOW HEAR THIS!

Get your tickets for Revisin' and Extendin', '55, the congressional secretaries' annual variety show. Here is your chance to get the secretaries' eyview of Capitol Hill.

Where? The beautiful new million-dollar ballroom, Sheraton Park Hotel. (It's worth the price of admission just to see the place.)

When? June 21 at 8:30 p. m.

Why? Because you are guaranteed a rollicking evening but more important because the net proceeds of Revisin' and Extendin', '55 will help establish a clinic for retarded children. There is no diagnostic or treatment center for the approximately 3,000 mentally retarded children in the metropolitan area (District of Columbia, Virginia, and Maryland). Many of these little children have been unnecessarily committed to institutions or are hidden and unknown to medical and educational authorities. The critical need for this clinic is manifest. Please help the Congressional Secretaries' Club, the Greater Washington Council for Retarded Children (an association of parents of retarded children) and HELP (Help Exceptional Little People—an association which aids them) establish this medical center. Georgetown Hospital will provide a staff, nurses, and space for the clinic. Won't you help to equip it?

How much? Three dollars for any seat in the house. Knowing you helped establish this clinic will be a source of great satisfaction to you. It will be the first clinic for retarded children in America.

Get your tickets now! Get your tickets now! Get your tickets now!

Sponsors: \$25 for 2 tickets. Patrons: \$10 for 2 tickets.

Send your check to Ticket Chairman, Variety Show, No. 326, Old House Office Building, Washington, D. C.

COME OUT! COME OUT! WHEREVER YOU ARE! See Revisin' and Extendin', '55, third edition, congressional secretaries' annual variety show.

You will see 16 gorgeous congressional chorines.

You will hear the lowdown on Revisin' and Extendin' without unanimous consent.

You will see a subcommittee on appropriations under investigation.

You will hear these statesmen talk their way out of this new switch.

You will see what happens to a G. C. (grateful constituent).

You will hear the terrific entertainers in the Sheik of Araby Restaurant.

You will see Firefly. Spectacular Firefly, the gal in flames!

You will hear Raoul Dedwood pilot a secretary through the rigors of congressional employment in "This Was Your Strife" (no apologies to Ralph Edwards).

You will see and hear all this and more, too, in Capitol Hill's colossal, spectacular Revisin' and Extendin', '55.

Tickets at Talbert's Agency, Willard Hotel; Congressional Hotel; Washington and Silver Spring Hecht Co. stores; or phone National 8-3120, extensions 613, 224, 1459, and 567.

Get your tickets now.

Mr. HALLECK. Mr. Speaker, will the gentleman yield?

Mr. MILLER of Nebraska. I yield.

Mr. HALLECK. After Revisin' and Extendin' was presented last year, I had the pleasure of announcing to the House that members of the cast would appear on a Columbia Broadcasting System network television show. I am happy to say, Mr. Speaker, that the National Broadcasting Co. will use parts of this year's show on Today, the Dave Garro-way show, tomorrow morning at 8:45. In view of the great interest last year's CBS TV show created throughout the country, I am sure Members of the House will want to remain at home until 8:45 tomorrow morning to see this year's TV presentation.

Mr. GROSS. Mr. Speaker, will the gentleman yield?

Mr. MILLER of Nebraska. I yield.

Mr. GROSS. I commend the gentleman for calling the attention of the Members of the House to this show to be given tomorrow night. It is for a worthy cause and I hope the Members will attend.

Mr. MILLER of Nebraska. The show will be at the Sheraton Park Hotel at 8:30 p. m. tomorrow evening.

The SPEAKER. The time of the gentleman from Nebraska has expired.

SPECIAL ORDER GRANTED

Mr. CANNON asked and was given permission to address the House for 15 minutes today, following the legislative program of the day and the conclusion of any special orders heretofore entered.

UTILIZATION OF SALINE WATER

Mr. ENGLE submitted the following conference report and statement on the bill (H. R. 2126), an act to amend the act of July 3, 1952, relating to research, development, and utilization of saline water:

CONFERENCE REPORT (H. REPT. No. 861)

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 2126) to amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the House recede from its disagreement to the amendment of the Senate and agree to the same with an amendment as

follows: In lieu of the matter inserted by the Senate amendment insert the following: "That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C., secs. 1951 ff.), is hereby amended as follows:

"(1) By modifying subsection (a) of section 2 of said Act so as to read: 'by means of research grants and contracts as set forth in subsection (d) of this section and by use of the facilities of existing Federal scientific laboratories within the monetary limits set forth in section 8 of this Act, to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation.'

"(2) By modifying section 3 of said Act to add the following: 'Similarly, the fullest cooperation by and with the Atomic Energy Commission and the Civil Defense Administration in research shall be carried out in the interest of achieving the objectives of the program.'

"(3) By modifying section 8 of said Act so as to read: 'There are authorized to be appropriated such sums, but not more than \$10,000,000 in all, as may be required (a) to carry out the provisions of this Act during the fiscal years 1953 to 1963, inclusive, (b) to finance for not more than two years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this Act, and (c) during the same additional period plus one more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this Act. Departmental expenses for direction of the program authorized by this Act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed \$2,000,000 and not more than \$2,500,000 shall be expended for research and development in Federal laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable: *Provided*, That not to exceed 10 per centum of the funds available in any one year for research and development may be expended in cooperation with public or private agencies in foreign countries in the development of processes useful to the program in the United States: *And provided further*, That contracts or agreements made in pursuance of this proviso shall provide that the results or information developed in connection therewith shall be available without cost to the program in the United States herein authorized.'

And the Senate agree to the same.

CLAIR ENGLE,
WAYNE N. ASPINALL,
LEO W. O'BRIEN,
A. L. MILLER,
JOHN P. SAYLOR,

Managers on the Part of the House.

CLINTON P. ANDERSON,
HENRY M. JACKSON,
JOSEPH C. O'MAHONEY,
EUGENE D. MILLIKIN,
ARTHUR V. WATKINS,

Managers on the Part of the Senate.

STATEMENT

The managers on the part of the House, at the conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, submit the following statement in explanation of the effect of the action agreed upon and recommended in the accompanying conference report.

The language agreed upon in the conference does not alter or change the basic purposes or provisions of the bill as passed by the House. The changes are in the amounts

authorized to be appropriated and used for various purposes. The managers for the House agreed with the Senate position that national and international conditions require that the program be expedited and, therefore, the amount (\$10,000,000) proposed by the Senate for the research program over the 13-year period was retained in the bill.

The Nation's rapidly increasing population and expanding industry, with the corresponding rapidly increasing needs for water, the critical water situations that have developed in many areas in recent years, and national and international conditions in this atomic age all reflect the imperative need for speeding the objectives of this program. It may become necessary within the terms of this program for many areas to depend on salt or saline water conversion for a water supply. Ways and means must be found without undue delay for economically converting salt or saline water to fresh water. The program cannot be allowed to drift along without producing concrete results, and it is expected that with the expanded implementation of the saline water program authorized by this legislation results will be obtained.

The language agreed upon in the conference specifically requires close cooperation and coordination of the saline water research program with and by the Atomic Energy Commission and the Civil Defense Administration in the interest of achieving the objectives of the program. National and world conditions emphasize the desirability of tying the saline water program in directly with the Atomic Energy and the Civil Defense activities. Also, energy is a primary factor in the demineralization of saline water and atomic power may in the future be the answer to low-cost production of fresh water from salt or saline water.

CLAIR ENGLE,
WAYNE N. ASPINALL,
LEO W. O'BRIEN,
A. L. MILLER,
JOHN P. SAYLOR,

Managers on the Part of the House.

TO PROVIDE FOR THE CONSTRUCTION OF DISTRIBUTION SYSTEM OF AUTHORIZED FEDERAL RECLAMATION PROJECTS

Mr. ENGLE submitted the following conference report and statement on the bill (H. R. 103) to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies.

CONFERENCE REPORT (H. REPT. No. 862)

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 103) to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the House recede from its disagreement to the amendment of the Senate and agree to the same with an amendment as follows: In lieu of the matter inserted by the Senate amendment insert the following:

"That irrigation distribution systems authorized to be constructed under the Federal reclamation laws may, in lieu of construction by the Secretary of the Interior (referred to in this Act as the 'Secretary'), be constructed by irrigation districts or other public agencies according to plans and specifications approved by the Secretary as provided in this Act.

"SEC. 2. To assist financially in the construction of the aforesaid local irrigation distribution systems by irrigation districts and other public agencies the Secretary is authorized, on application therefor by such irrigation districts or other public agencies, to make funds available on a loan basis from moneys appropriated for the construction of such distribution systems to any irrigation district or other public agency in an amount equal to the estimated construction cost of such system, contingent upon a finding by the Secretary that the loan can be returned to the United States in accordance with the general repayment provisions of sections 2 (d) and 9 (d) of the Reclamation Project Act of August 4, 1939, and upon a showing that such district or agency already holds or can acquire all lands and interests in land (except public and other lands or interests in land owned by the United States which are within the administrative jurisdiction of the Secretary and subject to disposition by him) necessary for the construction, operation, and maintenance of the project. The Secretary shall, upon approval of the loan, enter into a repayment contract which includes such provisions as the Secretary shall deem necessary and proper to provide assurance of prompt repayment of the loan. The term 'irrigation district or other public agency' shall for the purposes of this Act mean any conservancy district, irrigation district, water users' organization, or other organization, which is organized under State law and which has capacity to enter into contracts with the United States pursuant to the Federal reclamation laws.

"SEC. 3. The Secretary shall require as a condition to any such loan, that the water users' organization contribute in money or materials, labor, lands, or interests in land, computed at their reasonable value, a portion, not in excess of ten per centum, of the construction cost of such project (including all costs of acquiring lands, and interests in land), and that the plans for the distribution system are in accord with sound engineering practices and will achieve the purposes for which the system was authorized. Organizations contracting for repayment of the loans shall operate and maintain such works in conformity with reasonable contractual requirements determined to be appropriate for the protection of the United States, and when full repayment has been made to the United States, the Secretary shall relinquish all claims under said contracts. Title to distribution works constructed pursuant to this Act shall at all times be in the contracting water users' organizations. In addition to any other authority the Secretary may have to grant rights-of-way, easements, flowage rights, or other interests in lands for project purposes, the Secretary or the head of any other executive department may sell and convey to any irrigation district or other public agency at fair value lands and rights-of-way owned by the United States (other than lands being administered for national park, national monument, or wildlife purposes) which are reasonably necessary to the construction, operation, and maintenance of an irrigation distribution system under the provisions of this Act. No benefits or privileges under reclamation laws including repayment provisions shall be denied an irrigation distribution system because such system has been constructed pursuant to this Act. The provisions of this Act shall apply only to irrigation purposes, including incidental domestic and stock water, and loans hereunder shall be interest free. Nothing in this Act shall be construed to repeal or limit the procedural and substantive requirements of section 8 of the Act of June 17, 1902.

"SEC. 4. Except as herein otherwise provided, the provisions of the Federal reclama-

tion laws, and Acts amendatory thereto, are continued in full force and effect."

And the Senate agree to the same.

CLAIR ENGLE,
WAYNE N. ASPINALL,
LEO W. O'BRIEN,
A. L. MILLER,
JOHN P. SAYLOR,

Managers on the Part of the House.

CLINTON P. ANDERSON,
HENRY M. JACKSON,
JOSEPH C. O'MAHONEY,
EUGENE D. MILLIKIN,
ARTHUR V. WATKINS,

Managers on the Part of the Senate.

STATEMENT

The managers on the part of the House, at the conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 103) to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies, submit the following statement in explanation of the effect of the action agreed upon and recommended in the accompanying conference report.

The language agreed upon in the conference does not alter or change the basic provisions of the bill as passed by the House. The language agreed upon sets out in more detail than the language of the House-passed bill the requirements of applicant organizations and the conditions under which the Secretary can make loans.

The conference committee considered whether, in the event that lands and rights-of-way costs amounted to more than 10 per cent, the provision requiring a showing that the applicant organization "already holds or can acquire all lands and interests in land" would be in conflict with the provision "that the water users' organization contribute in money or materials, labor, lands, or interests in land, computed at their reasonable value, a portion, not in excess of ten per centum, of the construction cost of such project (including all costs of acquiring lands, and interests in land)." The conference committee agreed that the former provision is in the nature of a physical requirement whereby it is necessary to show that all lands and interests in land can physically be acquired whereas the latter provision is a financial requirement, and that, therefore, there can be no conflict between the two provisions.

CLAIR ENGLE,
WAYNE N. ASPINALL,
LEO W. O'BRIEN,
A. L. MILLER,
JOHN P. SAYLOR,

Managers on the Part of the House.

ARMY RESERVE LEGISLATION

(Mr. BROOKS of Louisiana asked and was given permission to address the House for 1 minute, and to revise and extend his remarks.)

Mr. BROOKS of Louisiana. Mr. Speaker, I am in full accord with the views of those people who feel—and many Members of Congress have told me that they feel that way—that we should try to revive the Reserve legislation which came before the House of Representatives several weeks ago. It is my hope that the Committee on Armed Services will shortly meet and report out a watered-down version of that measure, but a version of the bill that will give full and ample authority to the Defense Department to properly

and efficiently handle the work of training our military Reserves.

I hope that this bill can come out and be passed without any opposition.

CONSENT CALENDAR

The SPEAKER. This is Consent Calendar day.

The Clerk will call the first bill on the Consent Calendar.

SPECIAL PENSION TO CERTAIN PERSONS AWARDED THE MEDAL OF HONOR

The Clerk called the bill (H. R. 735) to increase the rate of special pension payable to certain persons awarded the Medal of Honor.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the present consideration of the bill?

Mr. FORD. Mr. Speaker, I ask unanimous consent that this bill be passed over without prejudice. I understand a rule has been granted, and it has been programed for this week.

The SPEAKER. There will be a suspension on this bill this afternoon. Is there objection?

There was no objection.

CONGRESSIONAL DELEGATION TO ATTEND NORTH ATLANTIC TREATY PARLIAMENTARY CONFERENCE

The Clerk called the resolution (H. Con. Res. 109) authorizing the appointment of a congressional delegation to attend the North Atlantic Treaty Organization Parliamentary Conference.

The Clerk read the title of the resolution.

The SPEAKER. Is there objection to the present consideration of the resolution?

Mr. GROSS. Mr. Speaker, I ask unanimous consent that this resolution be passed over without prejudice.

The SPEAKER. Is there objection? There was no objection.

INCREASING FEE FOR EXECUTING APPLICATION FOR PASSPORT

The Clerk called the bill (H. R. 5844) to increase the fee for executing an application for a passport from \$1 to \$3.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the present consideration of the bill?

Mr. DONDERO. Mr. Speaker, I ask unanimous consent that this bill be passed over without prejudice.

The SPEAKER. Is there objection?

There was no objection.

CONSTITUTIONAL CONVENTION IN ALASKA

The Clerk called the bill (H. R. 5166) relating to a constitutional convention in Alaska.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the present consideration of the bill?

Mr. CUNNINGHAM, Mr. FORD, and Mr. BYRNES of Wisconsin objected, and the bill, under the rule, was stricken from the calendar.

RELIEF OF CERTAIN MEMBERS OF THE ARMY AND AIR FORCE

The Clerk called the bill (H. R. 5652) to provide for the relief of certain members of the Army and Air Force, and for other purposes.

There being no objection, the Clerk read the bill, as follows:

Be it enacted, etc., That commissioned officers of the Regular Army or Regular Air Force (except those appointed pursuant to the act of December 28, 1945 (59 Stat. 663)), as amended, who, subsequent to August 31, 1946, and prior to the date of enactment of this act, were absent from duty by authority of the Secretary concerned for any period after their acceptance of appointment as a commissioned officer of the Regular Army or Regular Air Force during which period they were awaiting orders assigning them to their initial-duty stations, shall, if application therefor is made within 2 years after the date of enactment of this act and to the extent they have not already been paid therefor, be paid pay and allowances for that period. Payments of pay and allowances heretofore made to these officers for such periods shall be validated upon a determination by the Secretary concerned, or his designee, that such payments were free from fraud and collusion.

SEC. 2. Any commissioned officer or former commissioned officer of the Regular Army or Regular Air Force who has repaid the United States an amount paid to him as pay and allowances for a period described in the first section of this act, is entitled to be paid the amount involved, if otherwise proper, under this act.

SEC. 3. The Comptroller General of the United States, or his designee, shall, within 2 years from the date of this act, relieve disbursing officers, including special disbursing agents, of the Army and the Air Force from accountability or responsibility for any payments described in this act, and shall allow credits in the settlement of the accounts of such officers or agents for payments which are determined by the Secretary concerned, or his designee, to be free from fraud or collusion. The determination by the Secretary concerned, or his designee, shall be final and conclusive upon the Comptroller General: *Provided*, That this section shall not apply to original payments authorized by the first section of this act or to the repayments authorized by section 2 hereof.

SEC. 4. Any appropriations available to the military department concerned for the pay and allowances of military personnel are available for payments under this act.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

EXECUTION OF MORTGAGES AND DEEDS OF TRUST ON INDIVIDUAL INDIAN TRUST

The Clerk called the bill (H. R. 4802) to authorize the execution of mortgages and deeds of trust on individual Indian trust or restricted land.

There being no objection, the Clerk read the bill, as follows:

Be it enacted, etc., That the individual Indian owners of any land which either is held by the United States in trust for them or is subject to a restriction against alienation imposed by the United States are authorized, subject to approval by the Secretary of the Interior, to execute a mortgage or deed of trust to such land. Such land shall be subject to foreclosure or sale pursuant to the terms of such mortgage or deed of trust in accordance with the laws of the State or Territory in which the land is located. For the purpose of any foreclosure or sale proceeding the Indian owners shall be regarded as vested with an unrestricted fee simple title to the land, the United States shall not be a necessary party to the proceeding, and any conveyance of the land pursuant to the proceeding shall divest the United States of title to the land. All mortgages and deeds of trust to such land heretofore approved by the Secretary of the Interior are ratified and confirmed.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

SIMPLIFIED MAILINGS OF CHURCH PUBLICATIONS

The Clerk called the bill (H. R. 4585) to amend the act of August 24, 1912, to simplify the procedures governing the mailings of certain publications of churches and church organizations.

There being no objection, the Clerk read the bill, as follows:

Be it enacted, etc., That the ninth paragraph under the heading "Office of the Third Assistant Postmaster General" contained in the first section of the act entitled "An act making appropriations for the service of the Post Office Department for the fiscal year ending June 30, 1913, and for other purposes," approved August 24, 1912 (39 U. S. C., sec. 229), is amended—

(1) by inserting "or by a church or church organization," immediately after "or by a regularly established State institution of learning supported in whole or in part by public taxation,";

(2) by inserting "or by churches and church organizations," immediately after "and such periodical publications, issued by or under the auspices of benevolent or fraternal societies or orders or trades unions, or by strictly professional, literary, historical, or scientific societies,";

(3) by inserting "churches and church organizations," immediately after "whether such matter pertains to such benevolent or fraternal societies or orders, trades unions, strictly professional, literary, historical, or scientific societies,";

(4) by inserting "churches and church organizations," immediately after "to further the objects and purposes of such benevolent or fraternal societies or orders, trades unions,"; and

(5) by inserting "or by churches and church organizations" immediately after "circulation through the mails of periodical publications issued by, or under the auspices of, benevolent or fraternal societies or orders, or trades unions, or by strictly professional, literary, historical, or scientific societies,".

SEC. 2. The amendments made by the first section of this act shall take effect on the first day of the second calendar month following the date of enactment of this act.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

Digest of CONGRESSIONAL PROCEEDINGS

OF INTEREST TO THE DEPARTMENT OF AGRICULTURE

OFFICE OF BUDGET AND FINANCE
(For Department Staff Only)

Issued June 22, 1955
For actions of June 21, 1955
84th-1st - No. 104

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HIGHLIGHTS: House agreed to conference report on salt-water research bill. Ready for President. House received conference report on independent offices appropriation bill. Senate passed general Government matters appropriation bill. Senate debated forest mining bill. Senate Interior and Insular Affairs Committed ordered favorably reported Federal-State reclamation projects bill.

HOUSE

1. INDEPENDENT OFFICES APPROPRIATION BILL, 1956. Received the conference report on this bill, H. R. 5240 (H. Rept. 871) (pp. 7563-5). The conferees agreed to \$233,000,000 for the civil service retirement and disability fund, \$3,500,000 for the President's disaster relief fund, \$97,595,500 for Public Building Service, \$3,005,000 for Federal Supply Service, and \$16,000,000 for the National Science Foundation.
2. DEFENSE DEPARTMENT APPROPRIATION BILL, 1956. House conferees were appointed on this bill, H. R. 6042 (p. 7592). Senate conferees were appointed June 20.
3. SALT-WATER RESEARCH. Agreed to the conference report on H. R. 2126, to continue and expand the Interior Department research program on converting salt water to fresh water (pp. 7575-6). This bill will now be sent to the President.
4. RECLAMATION. Agreed to the conference report on H. R. 103, to provide for the construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies (p. 7575). This bill will now be sent to the President.
Passed with amendments H. R. 4663, to authorize the Secretary of the Interior to construct, operate, and maintain the Trinity River division, Central Valley project, Calif. (pp. 7576-90).

5. EXTENSION WORK. Rep. Avery commended the 4-H Clubs on their 25th anniversary (pp. 7565-6).
6. ROADS. Concurred in the Senate amendment to H. R. 5923, to authorize appropriations for the completion of the Inter-American Highway (p. 7590). This bill will now be sent to the President.
7. INVESTIGATIONS. The Agriculture Committee reported with amendment H. Res. 266, to authorize the Committee to make investigations into certain matters within its jurisdiction (H. Rept. 873) (p. 7596).
8. CUSTOMS SIMPLIFICATION. The Rules Committee reported a resolution for the consideration of H. R. 6040, to amend the administrative provisions of the Tariff Act of 1930 and to repeal obsolete provisions of the customs laws (p. 7596).
9. FLAMMABLE FABRICS. The Interstate and Foreign Commerce Committee ordered reported H. R. 5222, to exempt from the Flammable Fabrics Act scarves made of plain surface fabrics (p. D589).
10. WATER POLLUTION. The Interstate and Foreign Commerce Committee ordered reported with amendment S. 928, to amend the Water Pollution Control Act in order to provide for the control of air pollution (p. D589).
11. SELECTIVE SERVICE. The conferees agreed to file a report on H. R. 3005, to extend selective service for 4 years until July 1, 1959 (p. D591).
12. LEGISLATIVE PROGRAM. The "Daily Digest" states the conference report on the independent offices appropriation bill and the customs simplification bill will be considered today (p. D588).

SENATE

13. APPROPRIATIONS. Passed with amendments H. R. 6499, the general Government matters appropriation bill for 1956. Agreed to committee amendments as follows: Increasing from \$1,350 to \$1,375 the maximum amount which may be spent for a passenger vehicle, with an additional provision authorizing \$1,875 for a station wagon, and providing that delivery charges and the cost of certain special equipment may be added to these amounts; making the President's management improvement fund available to pay individuals not to exceed \$75 per diem; and authorizing a GS-18 for the President's Advisory Committee on Government Organization. Senate conferees were appointed (pp. 7508-9).
14. CONTRACTS. Passed with amendments H. R. 4904, providing for an extension of the Renegotiation Act of 1941 (pp. 7514-21).
The Judiciary Committee reported with amendments S. 1644, prescribing policy and procedure in connection with construction contracts made by executive agencies (S. Rept. 617) (p. 7493).
15. FORESTS. S. 1713, providing for multiple use of the surface of the same tracts of public lands, was made the unfinished business (p. 7522).
16. SUGAR. Sen. Barrett discussed the proposed sugar quotas and urged consideration of the domestic producer. The Secretary of Agriculture was commended for his actions in support of the domestic producer. (pp. 7522-37.)

undertaking, approved by the Attorney General, be deposited as prescribed by section 213 of the said act.

With the following committee amendment:

On page 1, line 7, after the words "visa fee", change the colon to a comma and insert the following: "under such conditions and controls which the Attorney General, after consultation with the Surgeon General of the United States Public Health Service, Department of Health, Education, and Welfare, may deem necessary to impose."

The committee amendment was agreed to.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

DOROTHY CLAIRE MAURICE

The Clerk called the bill (H. R. 3198) for the relief of Dorothy Claire Maurice.

There being no objection, the Clerk read the bill, as follows:

Be it enacted, etc., That, for the purposes of the Immigration and Nationality Act, Dorothy Claire Maurice shall be held and considered to have been lawfully admitted to the United States for permanent residence as of the date of the enactment of this act, upon payment of the required visa fee. Upon the granting of permanent residence to such alien as provided for in this act, the Secretary of State shall instruct the proper quota-control officer to deduct one number from the appropriate quota for the first year that such quota is available.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

ORVILLE ENNIS

The Clerk called the bill (H. R. 3871) for the relief of Orville Ennis.

There being no objection, the Clerk read the bill, as follows:

Be it enacted, etc., That, for the purposes of the Immigration and Nationality Act, the minor child, Orville Ennis, shall be held to be eligible for a preferential status under the provisions of section 203 (a) (3) of that act.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

HARRIET L. BARCHET

The Clerk called the bill (H. R. 5021) for the relief of Harriet L. Barchet.

There being no objection, the Clerk read the bill, as follows:

Be it enacted, etc., That, for the purposes of the Immigration and Nationality Act, Harriet L. Barchet shall be classified as a nonquota alien under the provisions of section 101 (a) (27) (B) of that act.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

LT. (JG.) SVEND J. SKOU

The Clerk called the bill (H. R. 1151) for the relief of Lt. (Jg.) Svend J. Skou.

There being no objection, the Clerk read the bill, as follows:

Be it enacted, etc., That the act entitled "An act for the relief of Lt. (Jg.) Svend J. Skou," approved March 14, 1944, is amended to read as follows: "That effective as of December 1, 1935, the retired pay of Lt. (Jg.) Svend J. Skou, United States Navy, retired, shall be three-fourths of the highest pay of his grade."

SEC. 2. The additional retired pay for the period from December 1, 1935, to March 13, 1944, both dates inclusive, to which the said Lt. (Jg.) Svend J. Skou is entitled by such act of March 14, 1944, as amended by the first section of this act, shall be paid to him in a lump sum, out of appropriations currently available for payment of retired pay of naval officers, within 60 days after the date of enactment of this act.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

THE LATE SEYMOUR RICHARD BELINKY

The Clerk called the joint resolution (H. J. Res. 251) to authorize the President to issue posthumously to the late Seymour Richard Belinky, a flight officer in the United States Army, a commission as second lieutenant, United States Army, and for other purposes.

There being no objection, the Clerk read the bill, as follows:

Resolved, etc., That the President is authorized to issue posthumously to the late Seymour Richard Belinky, late a flight officer, United States Army, a commission as second lieutenant, United States Army, as of December 27, 1944.

SEC. 2. The Secretary of the Army is authorized and directed to amend the records of the Department of the Army so as to carry the said Seymour Richard Belinky as a second lieutenant, United States Army, to rank from December 27, 1944.

The joint resolution was ordered to be engrossed and read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

REAR ADM. GEORGE JOHN DUFEEK

The Clerk called the bill (S. 2078) for the relief of Rear Adm. George John Dufek.

There being no objection, the Clerk read the bill, as follows:

Be it enacted, etc., That, notwithstanding any other provisions of law, the Secretary of the Navy is authorized to employ Rear Adm. George John Dufek, United States Navy, retired, in a command status in connection with Antarctic expeditions.

The bill was ordered to be read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

Mr. JARMAN. Mr. Speaker, I move that the further call of the Private Calendar be dispensed with. The reports on Calendar Nos. 486 and 487 did not reach the committee of objectors in time for review.

The SPEAKER. The question is on the motion of the gentleman from Oklahoma.

The motion was agreed to.

COMMITTEE ON BANKING AND CURRENCY

Mr. SPENCE. Mr. Speaker, I ask unanimous consent that the Committee on Banking and Currency may sit this afternoon during general debate.

The SPEAKER. Is there objection to the request of the gentleman from Kentucky?

There was no objection.

CONSTRUCTION OF DISTRIBUTION SYSTEMS ON RECLAMATION PROJECTS

Mr. ENGLE. Mr. Speaker, I call up the conference report on the bill (H. R. 103) providing for construction of distribution systems on authorized Federal reclamation projects by irrigation districts and other public agencies, and ask unanimous consent that the statement of the managers on the part of the House be read in lieu of the report.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the request of the gentleman from California?

There was no objection.

The Clerk read the statement.

(For conference report and statement, see proceedings of the House of June 20, 1955.)

The SPEAKER. The question is on the conference report.

The conference report was agreed to, and a motion to reconsider was laid on the table.

RESEARCH IN DEVELOPMENT AND UTILIZATION OF SALINE WATERS

Mr. ENGLE. Mr. Speaker, I call up the conference report on the bill (H. R. 2126) to amend the act of July 3, 1952, relating to research in the development and utilization of saline waters, and I ask unanimous consent that the statement be read in lieu of the report.

The Clerk read the title of the bill.

The SPEAKER. Is there objection to the request of the gentleman from California?

There was no objection.

The Clerk read the statement.

(For conference report and statement, see proceedings of the House June 20, 1955.)

The SPEAKER. The question is on the conference report.

Mr. BAILEY. Mr. Speaker, will the gentleman yield?

Mr. ENGLE. I yield to the gentleman from West Virginia.

Mr. BAILEY. To what extent would this provide a remedy for our falling water level in the eastern and north-eastern sections of the country? Does it deal just purely with saline water?

Mr. ENGLE. It deals strictly with saline water, but to the extent that this program is successful it will relieve the underground draft on present underground water supplies. In short, if this saline research program achieves the results that we think it is capable of achieving, then it will be unnecessary to reach deep into the ground as we are doing in many, many places to get underground water, and it will supply water for

industrial uses, particularly along the coastal areas of the United States. It can be very beneficial by providing an alternate source of water for that which is now in decreasing supply from the underground.

Mr. BAILEY. I am not naive enough to believe that the drainage you are taking now of the underground sources on the Pacific coast would in any way affect the water level in the East, but I thought there might be some way by which we could get at this problem, which we know is a serious one for the future, and try to correct it.

Mr. ENGLE. This is a nationwide project. We hope sometime that they can run a pipeline right out into the ocean and secure water.

Mr. BAILEY. I thank the gentleman.

The SPEAKER. The question is on the conference report.

The conference report was agreed to, and a motion to reconsider was laid on the table.

TRINITY RIVER DIVISION, CENTRAL VALLEY PROJECT, CALIFORNIA

Mr. ENGLE. Mr. Speaker, I move that the House resolve itself into the Committee of the Whole House on the State of the Union for the consideration of the bill (H. R. 4663) to authorize the Secretary of the Interior to construct, operate, and maintain the Trinity River division, Central Valley project, California, under Federal reclamation laws.

The motion was agreed to.

Accordingly the House resolved itself into the Committee of the Whole House on the State of the Union for the consideration of the bill H. R. 4663, with Mr. MADDEN in the chair.

The Clerk read the title of the bill.

By unanimous consent the first reading of the bill was dispensed with.

Under the rule, the gentleman from California [Mr. ENGLE] will be recognized for 1 hour and the gentleman from Nebraska [Mr. MILLER] for 1 hour.

The gentleman from California is recognized.

Mr. ENGLE. Mr. Chairman, I yield myself such time as I may require.

Mr. BAILEY. Mr. Chairman, will the gentleman yield?

Mr. ENGLE. I yield to the gentleman from West Virginia.

Mr. BAILEY. Mr. Chairman, I ask unanimous consent to insert my remarks in the Appendix and include in connection therewith a prize-winning essay in the nationwide Soil Conservation contest.

The CHAIRMAN. The Chair will advise the gentleman from West Virginia that such requests should be made in the House rather than in the Committee of the Whole.

Mr. BAILEY. I thank the chairman for the information and will take advantage of his suggestion.

Mr. ENGLE. Mr. Chairman, the purpose of this legislation is to authorize the Secretary of the Interior to construct, operate, and maintain the Trinity River division of the Central Valley project, Calif., under the reclamation laws.

This bill was reported by the committee without a dissenting vote. The rule was granted week before last.

In discussing this project I want first to deal with the background of the legislation and secondly with the factual basis for the project and third describe briefly the general project itself.

This project was initially authorized on January 2, 1953, by a finding of feasibility under section 9 (a) of the 1939 Reclamation Act, by Secretary Chapman. The reclamation law provides that irrigation and reclamation projects that fall within certain very specific findings of feasibility with reference to their economic, engineering, and payout, can be certified for construction by the Secretary of the Interior. Thereupon it is only necessary for the Appropriations Committee to proceed with appropriations for the project. That has been done in a great number of instances in the past.

In this case the Secretary of the Interior, Secretary Chapman, on January 2, 1953, so certified this project; and, as far as I am aware, it is the only project of its size in the United States which is capable of authorization in that fashion under the 1939 act.

On February 17, 1955, Secretary McKay approved the Trinity River project in a supplemental report, and recommended its immediate construction. The project, therefore, has the approval of both Secretary McKay and his predecessor, Secretary Chapman.

On April 13, 1955, the Commissioner of Reclamation, Mr. Dexheimer, appeared before our committee and testified in support of this legislation and recommended immediate construction of the project.

On April 9, 1953, the state engineer of California in his official comments on the Trinity River project, approved the project for immediate authorization and construction.

On May 28, 1955, he filed a similar recommendation with reference to the supplemental report prepared and filed by the present Secretary of the Interior.

Gov. Goodwin Knight, the Governor of California, on April 14, 1955, wired our committee at the time of the hearings reaffirming the State's position and asking for immediate construction of the Trinity River project.

Both houses of our State legislature passed resolutions within the past 2 weeks urging the immediate construction of the Trinity River project.

The House Committee on Appropriations in the public works bill before this House last week recommended and earmarked \$1 million to start construction on the Trinity River project when this bill is passed.

Senators KNOWLAND and KUCHEL both have legislation pending at the other end of the Capitol for authorization of the Trinity River project.

Since 1942 more than \$572,000 have been spent on planning and engineering and the budget this year recommended an additional \$400,000 for that purpose.

Mr. Chairman, the very wide and unanimous support that this project has

received not only here but throughout the State of California is not an accident by any means. I want to deal now briefly with the factual basis upon which this project comes before you today.

In 1951 the House Committee on the Interior and Insular Affairs sent a special subcommittee to California for the purpose of making an investigation to determine the status of the water supplies in the Central Valley project of California which had in the preceding year for the first time been put into operation as a multiple-purpose waterpower and flood-control project. That subcommittee held hearings in Sacramento, the State capital of California, on October 29, 30, and 31 of 1951. The members of that subcommittee were the gentleman who addresses you now, as chairman, the gentleman from Colorado [Mr. Aspinall], the gentleman from California, Mr. Yorty, the gentleman from Montana, Mr. D'Ewart, the gentleman from California, Mr. Poulson, and the gentleman from Ohio [Mr. Bowl].

That special subcommittee met with the joint water problems committee of the State legislature during those days in Sacramento. The specific and announced purpose of the hearings there were to determine whether or not the developed water in the Sacramento River and in the Central Valley project had been over subscribed. On that one issue and on all of the other issues with one exception the subcommittee made unanimous findings of fact and recommendations. The finding made by the committee appears on page 4 of the committee report filed at that time and is as follows:

For all practical purposes the developed water supplies of the Sacramento River are overcommitted and oversubscribed. Increased uses of water from the Sacramento River from the beginning of project construction in 1935 to the present are about 3 times the expected increase of 300,000 acre-feet which was estimated by the State of California and the Bureau of Reclamation officials in the original plans for the operation of the Central Valley project.

It will be recalled that the Central Valley project in California is a project designed to take water surpluses from the north end of the Central Valley and distribute those surpluses in the San Joaquin or the southern part of the Central Valley of California. When the Central Valley project was set up it was anticipated that over a period of time the uses of water in the Sacramento Valley itself would increase about 300,000 acre-feet, but after the project was started in 1935 and during the World War that followed, the population and economy of California increased so rapidly that the uses of water in the Sacramento Valley increased 3 times what they were expected to increase when the project was originally designed.

It was as a consequence of that fact that our committee became disturbed over whether or not there was sufficient developed water in the Central Valley project actually to assure its operation; therefore, this subcommittee went out to find out about it and made the finding

Public Law 111 - 84th Congress
Chapter 227 - 1st Session
H. R. 2126

AN ACT

All 69 Stat. 198.

To amend the Act of July 3, 1952, relating to research in the development and utilization of saline waters.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act of July 3, 1952 (66 Stat. 328; 42 U. S. C., secs. 1951 ff.), is hereby amended as follows: Saline water research.

(1) By modifying subsection (a) of section 2 of said Act so as to read: "by means of research grants and contracts as set forth in subsection (d) of this section and by use of the facilities of existing Federal scientific laboratories within the monetary limits set forth in section 8 of this Act, to conduct research and technical development work, to make careful engineering studies to ascertain the lowest investment and operating costs, and to determine the best plant designs and conditions of operation". 42 USC 1952(a).

(2) By modifying section 3 of said Act to add the following: "Similarly, the fullest cooperation by and with the Atomic Energy Commission and the Civil Defense Administration in research shall be carried out in the interest of achieving the objectives of the program." 42 USC 1953.

(3) By modifying section 8 of said Act so as to read: "There are authorized to be appropriated such sums, but not more than \$10,000,000 in all, as may be required (a) to carry out the provisions of this Act during the fiscal years 1953 to 1963, inclusive, (b) to finance for not more than two years beyond the end of said period such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this Act, and (c) during the same additional period plus one more year, to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this Act. Departmental expenses for direction of the program authorized by this Act and for the correlation and coordination of information as provided in subsection (d) of its section 2 shall not exceed \$2,000,000, and not more than \$2,500,000 shall be expended for research and development in Federal laboratories. Both of said sums shall be scheduled for expenditure in equal annual amounts insofar as is practicable: *Provided*, That not to exceed 10 per centum of the funds available in any one year for research and development may be expended in cooperation with public or private agencies in foreign countries in the development of processes useful to the program in the United States: *And provided further*, That contracts or agreements made in pursuance of this proviso shall provide that the results or information developed in connection therewith shall be available without cost to the program in the United States herein authorized." Appropriation.
42 USC 1958.

Cooperation with
foreign agencies.

Approved June 29, 1955.

